RF - TEST REPORT

Report Number	: **68.850.7.035.05**	Date of Issue:	November 04, 2011
Model	: **RRU3004**		
Product Type	: Remote Radio Unit of GSM Distributed Base Station		
Applicant	: Huawei Technologies Co., Ltd.		
Address	: Administration Building, Huawei Base, Bantian, Longgang District,		
	: 518129 Shenzhen, People's Republic of China		
Production Facility	: Huawei Technologies Co., Ltd.		
Address	: Administration Building, Huawei Base, Bantian, Longgang District,		
	: 518129 Shenzhen, People's Republic of China		
Test Result	: ■ **Positive** ☐ **Negative**		
Total pages excluding Appendices	: 147		

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1 General Information

1.1 Notes

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Prepared By	**2008-11-26**	黄渊球	
RF Test Engineer	**Date**	**Name**	**Signature**
Reviewed By	**2008-11-26**	余 辉	
EMC Laboratory Manager	**Date**	**Name**	**Signature**
Approved by	**2011-11-04**	**Louis Lin**	
EMC Project Manager	**Date**	**Name**	**Signature**

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1.2 Testing Laboratory

Test location:

EMC LABORATORY OF RELIABILITY LABORATORY OF HUAWEI TECHNOLOGIES CO., LTD

Address: Bantian Longgang District Shenzhen
Country: P.R.China
Phone: +86-755-89651014
FAX: +86-755-89652518

1.3 Details of Applicant

CLIENT: Huawei Technologies Co., Ltd.

ADDRESS: Bantian Longgang District Shenzhen, P.R. China

PRODUCT DESCRIPTION: HUAWEI RRU3004 dual-density EDGE TRX 900M/DCS1800
MANUFACTURERS MODEL NUMBER: RRU3004

1.4 Application Details

Date of receipt of order: Nov 15, 2008
Date of receipt of test item: Nov 15, 2008
Date of test: Nov.15, 2008 – Novr.25 2008

1.5 Test Item

Refer to table 1

1.6 Applied Standard

APPLIED PRODUCT STANDARD EN 301 502 V9.2.1 (2010-10)

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2 Summary of Results

Table 1 below shows a brief summary of the results obtained.

Table 1 Summary of results

Conformance requirement according to EN 301 502 V8.1.2; 2001-07	**Result**
Modulation accuracy (Clause 4.2.1 of ETSI EN301 502V9.2.1)	PASS
Mean transmitted RF carrier power (Clause 4.2.2 of ETSI EN301 502V9.2.1)	PASS
Transmitted RF carrier power versus time (Clause 4.2.3 of ETSI EN301 502V9.2.1)	PASS
Adjacent channel power (Clause 4.2.4 of ETSI EN301 502V9.2.1)	PASS
Spurious emissions from the transmitter antenna connector (Clause 4.2.5 of ETSI EN301 502V9.2.1)	PASS
Intermodulation attenuation (Clause 4.2.6 of ETSI EN301 502V9.2.1)	PASS
Wideband noise and intra BBS intermodulation attenuation in multicarrier operation (Clause 4.2.8 of ETSI EN301 502V9.2.1)	PASS
Static Reference Sensitivity Level (Clause 4.2.9 of ETSI EN301 502V9.2.1)	PASS
Multipath Reference Sensitivity Level (Clause 4.2.10 of ETSI EN301 502V9.2.1)	PASS
Reference Interference Level (Clause 4.2.11 of ETSI EN301 502V9.2.1)	PASS
Blocking Characteristics (Clause 4.2.12 of ETSI EN301 502V9.2.1)	PASS
Intermodulation characteristics (Clause 4.2.13 of ETSI EN301 502V9.2.1)	PASS
AM suppression (Clause 4.2.14 of ETSI EN301 502V9.2.1)	PASS
Spurious emissions from the receiver antenna connector (Clause 4.2.15 of ETSI EN301 502V9.2.1)	PASS
Radiated Spurious emissions (Clause 4.2.16 of ETSI EN301 502V9.2.1)	See EMC Report

* Measurement taken is within the measurement uncertainty of measurement system.

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3 Equipment Specification

3.1 General Description

The RRU3004 is an outdoor remote RF unit. It processes baseband signals and RF signals.

The RRU3004 has excellent performance and high reliability. A single module can support up to 2TRXs. It can smoothly evolve into the GSM/EDGE Radio Access Network (GERAN).

The RRU3004 provides excellent coverage because of the following features:

- High receive sensitivity
- Power boost technology (PBT)
- Omni-directional coverage and directional coverage
- Configuration of up to six cells in a single cabinet
- Power detection and reporting of the Dual rru Baseband and RF Unit (DRRU)
- Radio Frequency (RF) hopping and baseband frequency hopping
- Transmit diversity and 4-way receive diversity
- Dynamic and static power control

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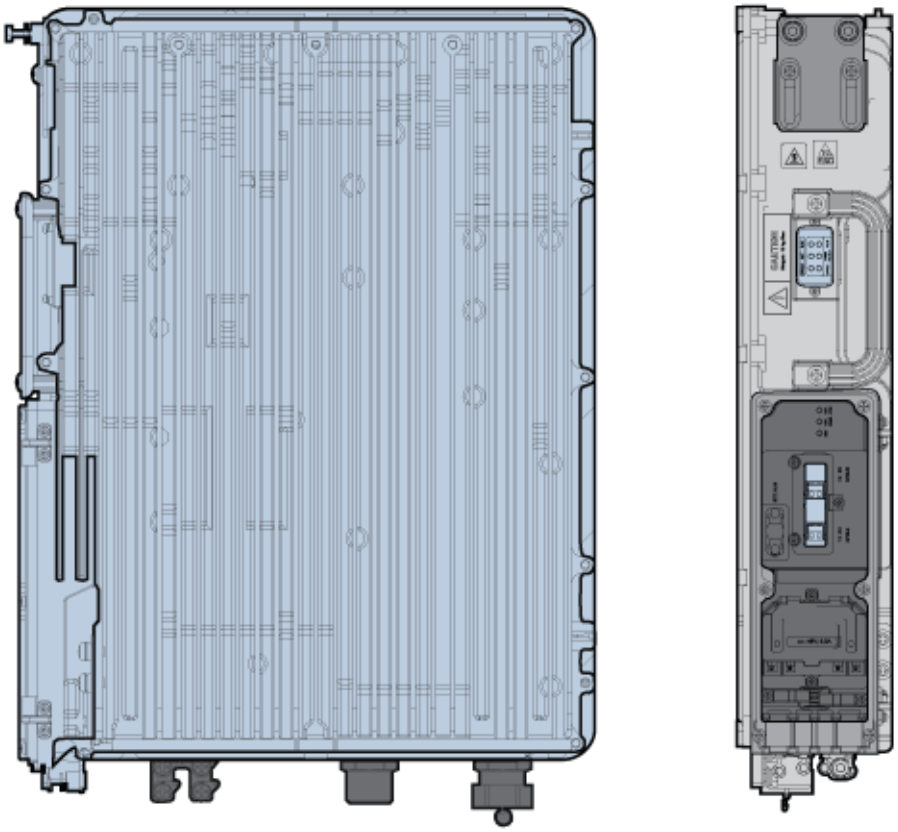
3.2 Technical Data

3.2.1 Main Equipment Technical Data

3.2.1.1 RRU3004

Input Rated Voltage:	⎓ -48V
Rated Power:	Max 300W for EGSM900 Max 330 W for DCS1800
Dimensions:	356（depth）×100（width）×480（height）(mm^3)
Weight:	17kg
Assigned Band：	RGSM900 EGSM900 DCS1800
Transmitt Frequency：	921-946 MHz for RGSM900 925-960MHz for EGSM900 1805-1880MHz for DCS1800
Receive Frequency：	876-901 MHz for RGSM900 880-915MHz for EGSM900 1710-1785MHz for DCS1800
TRX Equipped:	EDGE TRX
Maximum Output Power：	44.7dBm(GMSK) and 43.0dBm(8PSK) for RGSM900 44.7dBm(GMSK) and 43.0dBm(8PSK) for EGSM900 43.0dBm(GMSK) and 41.8dBm(8PSK) for DCS1800



侧视图　　正视图

Figure 1.EUT Appearance

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4 Product Description

4.1 RGSM900

4.1.1 Type Designation

TYPE DESIGNATION (NOTE 1)
The type designation may be either a single alphanumeric code. RRU3004

NOTES:

(1) This is the manufacturer's numeric or alphanumeric code or name that is specific to a particular equipment. It may contain information in coded form on the characteristics of the equipment e.g. frequency, power. The manufacturer is free to choose the form of the type designation.

(2) This is the number, code or trade name used by the manufacturer to describe a series or 'family' of equipment of substantially the same mechanical and electrical construction which will include a number of related equipments. This number is often referred to as the "model no."

(3) This is the manufacturer's identification number given to a specific equipment in the series or 'family' of equipments. It is often referred to as the "identification number".

4.1.2 Type of Equipment

TYPE OF EQUIPMENT	
[✓]	BTS
[ ]	Micro BTS
[ ]	Other

4.1.3 Technical Characteristics

[✓] BTS			
Max. Number of Transceivers	[2]	Dedicated BCCH Transceivers	[ ]
BTS Power Class	[5]		
BTS Power Measurement Position :-		Slow Frequency Hopping :-	
Input to Combiner	[ ]	Baseband	[ ]
Antenna Connector	[✓]	Synthesizer	[✓]
DTX	[ ]	Receiver Diversity	[ ]

[ ] Micro BTS			
Max. Number of Transceivers	[ ]	Dedicated BCCH Transceivers	[ ]
Micro BTS Power Class	[ ]		
BTS Power Measurement Position :-		Slow Frequency Hopping :-	
Input to Combiner	[ ]	Baseband	[ ]
Antenna Connector	[ ]	Synthesizer	[ ]

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DTX	[ ]	Receiver Diversity	[ ]

Special Configuration
(Justify compliance)

4.1.4 Transmitter Technical Characteristics

TRANSMITTER TECHNICAL CHARACTERISTICS
TRANSMITTER FREQUENCY
Method of frequency generation [ ] CRYSTAL [✓] SYNTHESIZER [ ] OTHER
TRANSMITTER FREQUENCY RANGE [✓] RGSM 900 (921-960 MHz) [ ] EGSM 900 (925-960 MHz) [ ] DCS 1800 (1805-1880 MHz) [ ] Dual Band [ ] Other - (include frequency ranges supported)

4.1.5 Transmitter RF Power Characteristics

TRANSMITTER RF POWER CHARACTERISTICS	
MAXIMUM RATED TRANSMITTER OUTPUT POWER per transceiver as stated by manufacturer **44.7dBm(GMSK) and 43.0dBm(8PSK)**	
Static Power Control	
Number of steps supported [6]	
Is Dynamic Power Control Supported?	
Yes [✓]	No [ ]
If supported, how many steps? [15]	

4.1.6 Transmitter Modulation Characteristics

TRANSMITTER MODULATION INPUT CHARACTERISTICS
Modulation bit rate 270.833 kbit/s

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Type of modulation: 0.3 GMSK

SUBCARRIER:				DIRECT:			
MSK	YES [ ]	NO [✓]		Direct FSK	YES [ ]	NO [✓]	
FFSK	YES [ ]	NO [✓]		GMSK	YES [✓]	NO [ ]	
				Generalised Tamed FM	YES [ ]	NO [✓]	
				Multilevel State FM	YES [ ]	NO [✓]	
				PLL-4PSK	YES [ ]	NO [✓]	
				8 PSK	YES [✓]	NO [ ]	
				Other			

4.1.7 Receiver Technical Characteristics

RECEIVER TECHNICAL CHARACTERISTICS		
RECEIVER - FREQUENCY		
METHOD OF FREQUENCY GENERATION		
[ ]	CRYSTAL	
[✓]	SYNTHESIZER	
[ ]	OTHER	
INTERMEDIATE FREQUENCIES		
[✓]	1st	95 MHz GSM 900
[ ]	2nd	MHz
[ ]	3rd	kHz
Is local oscillator injection frequency higher or lower than the receiver nominal frequency?		
[ ]	Higher (For channel..... to .....)	
[✓]	Lower 785~820MHz (For channel 880~915MHz) GSM900	
[ ]	Identical	Give details
RECEIVER FREQUENCY RANGE		

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[✓] RGSM 900 (876-915 MHz) [ ] EGSM 900 (880-915 MHz) [ ] DCS 1800 (1710-1785 MHz) [ ] Dual Band [ ] Other - (include frequency ranges supported)
[✓] Receiver Diversity

4.1.8 Common Technical Characteristics

TRANSMITTER AND RECEIVER CHARACTERISTICS
CHANNEL SEPARATION 200 kHz
State the minimum channel spacing 200 kHz

4.1.9 Temperature Range

EXTREME TEMPERATURE RANGE over which equipment is to be type tested
Minimum Temperature [- 40℃]
Maximum Temperature [+55℃]

4.1.10 Construction of the Equipment

CONSTRUCTION OF EQUIPMENT
Single unit (NOTE 4) [✓]
Multiple units [ ]
If multiple units describe each one clearly

NOTE 4 Unit means a physically separate item of the equipment.

AUTOMATIC EQUIPMENT SWITCH OFF
If the equipment is designed to automatically switch off at a predetermined voltage level which is higher or lower in value than the minimum and minimum calculated values this shall be clearly stated.
[✓] Applies V Cut-off voltage
[ ] Does not apply

4.1.11 Power Source

POWER SOURCE	
[ ] AC MAINS	[ ] Single phase

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V	AC Voltage	220VAC Rate Input (176V-264V)Working range 110VAC Rated Input Dual Live (88V-132V))Working range	[ ]	Three phase
W	Power:	1955Wmax		
	AC MAINS FREQUENCY (Hz) 50			

[✓]	DC INPUT	
V	DC Voltage	-48 VDC Rated Input (-36V－-57V) working range
W	Power:	300Wmax
[ ]	Other (please supply details)	

[ ]	BATTERY
[ ]	Nickel Cadmium
[ ]	Mercury
[ ]	Alkaline
[ ]	Lead acid (Vehicle regulated)
[ ]	Lead acid (Not vehicle regulated)
[ ]	Lithium
[ ]	Other (please supply details)
	volts nominal. End point voltage as quoted by equipment manufacturer V

COSITING OPERATION

Is the equipment suitable for co-siting with:-

GSM900	[ ]	Yes
	[ ]	No
DCS1800	[✓]	Yes
	[ ]	No

FREQUENCY RANGE LIMITATIONS

Are there any differences between the configurations, if so please state:-
(e.g. limited frequency range due to ancillaries, i.e. combiners, duplexers, etc.)

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N.A

NOTE 5. The frequency shall be marked as not applicable if the equipment is able to operate on any designated channel within the specified frequency range.

4.2 EGSM900

4.2.1 Type Designation

TYPE DESIGNATION (NOTE 1)
The type designation may be either a single alphanumeric code. RRU3004

NOTES:

(1) This is the manufacturer's numeric or alphanumeric code or name that is specific to a particular equipment. It may contain information in coded form on the characteristics of the equipment e.g. frequency, power. The manufacturer is free to choose the form of the type designation.

(2) This is the number, code or trade name used by the manufacturer to describe a series or 'family' of equipment of substantially the same mechanical and electrical construction which will include a number of related equipments. This number is often referred to as the "model no."

(3) This is the manufacturer's identification number given to a specific equipment in the series or 'family' of equipments. It is often referred to as the "identification number".

4.2.2 Type of Equipment

TYPE OF EQUIPMENT	
[✓]	BTS
[ ]	Micro BTS
[ ]	Other

4.2.3 Technical Characteristics

[✓] BTS			
Max. Number of Transceivers	[2]	Dedicated BCCH Transceivers	[ ]
BTS Power Class	[5]		
BTS Power Measurement Position :-		Slow Frequency Hopping :-	
Input to Combiner	[ ]	Baseband	[ ]
Antenna Connector	[✓]	Synthesizer	[✓]
DTX	[ ]	Receiver Diversity	[ ]
[ ] Micro BTS			
Max. Number of Transceivers	[ ]	Dedicated BCCH Transceivers	[ ]
Micro BTS Power Class	[ ]		
BTS Power Measurement Position :-		Slow Frequency Hopping :-	

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Input to Combiner	[ ]	Baseband	[ ]
Antenna Connector	[ ]	Synthesizer	[ ]
DTX	[ ]	Receiver Diversity	[ ]

Special Configuration
(Justify compliance)

4.2.4 Transmitter Technical Characteristics

TRANSMITTER TECHNICAL CHARACTERISTICS
TRANSMITTER FREQUENCY
Method of frequency generation [ ] CRYSTAL [✓] SYNTHESIZER [ ] OTHER
TRANSMITTER FREQUENCY RANGE [ ] RGSM 900 (921-960 MHz) [✓] EGSM 900 (925-960 MHz) [ ] DCS 1800 (1805-1880 MHz) [ ] Dual Band [ ] Other - (include frequency ranges supported)

4.2.5 Transmitter RF Power Characteristics

TRANSMITTER RF POWER CHARACTERISTICS	
MAXIMUM RATED TRANSMITTER OUTPUT POWER per transceiver as stated by manufacturer **44.7dBm(GMSK) and 43.0dBm(8PSK)**	
Static Power Control	
Number of steps supported [6]	
Is Dynamic Power Control Supported?	
Yes [✓]	No [ ]
If supported, how many steps? [15]	

4.2.6 Transmitter Modulation Characteristics

TRANSMITTER MODULATION INPUT CHARACTERISTICS

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Modulation bit rate 270.833 kbit/s

Type of modulation: 0.3 GMSK

SUBCARRIER: DIRECT:

MSK	YES	[ ]	NO	[✓]	Direct FSK	YES	[ ]	NO [✓]
FFSK	YES	[ ]	NO	[✓]	GMSK	YES	[✓]	NO [ ]
					Generalised Tamed FM	YES	[ ]	NO [✓]
					Multilevel State FM	YES	[ ]	NO [✓]
					PLL-4PSK	YES	[ ]	NO [✓]
					8 PSK	YES	[✓]	NO [ ]
					Other			

4.2.7 Receiver Technical Characteristics

RECEIVER TECHNICAL CHARACTERISTICS		
RECEIVER - FREQUENCY		
METHOD OF FREQUENCY GENERATION		
[ ]	CRYSTAL	
[✓]	SYNTHESIZER	
[ ]	OTHER	
INTERMEDIATE FREQUENCIES		
[✓]	1st	95 MHz GSM 900
[ ]	2nd	MHz
[ ]	3rd	kHz
Is local oscillator injection frequency higher or lower than the receiver nominal frequency?		
[ ]	Higher (For channel..... to .....)	
[✓]	Lower 785~820MHz (For channel 880~915MHz) GSM900	
[ ]	Identical	Give details

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RECEIVER FREQUENCY RANGE [ ] RGSM 900 (876-915 MHz) [✓] EGSM 900 (880-915 MHz) [ ] DCS 1800 (1710-1785 MHz) [ ] Dual Band [ ] Other - (include frequency ranges supported)
[✓] Receiver Diversity

4.2.8 Common Technical Characteristics

TRANSMITTER AND RECEIVER CHARACTERISTICS
CHANNEL SEPARATION 200 kHz
State the minimum channel spacing 200 kHz

4.2.9 Temperature Range

EXTREME TEMPERATURE RANGE over which equipment is to be type tested
Minimum Temperature [- 40℃] Maximum Temperature [+55℃]

4.2.10 Construction of the Equipment

CONSTRUCTION OF EQUIPMENT
Single unit (NOTE 4) [✓] Multiple units [ ] If multiple units describe each one clearly

NOTE 4 Unit means a physically separate item of the equipment.

AUTOMATIC EQUIPMENT SWITCH OFF
If the equipment is designed to automatically switch off at a predetermined voltage level which is higher or lower in value than the minimum and minimum calculated values this shall be clearly stated. [✓] Applies V Cut-off voltage [ ] Does not apply

4.2.11 Power Source

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POWER SOURCE			
[ ]	AC MAINS	[ ]	Single phase
V	AC Voltage 220VAC Rate Input (176V-264V)Working range 110VAC Rated Input Dual Live (88V-132V))Working range	[ ]	Three phase
W	Power: 1955Wmax		
	AC MAINS FREQUENCY (Hz) 50		
[✓]	DC INPUT		
V	DC Voltage -48 VDC Rated Input (-36V－-57V) working range		
W	Power: 300Wmax		
[ ]	Other (please supply details)		
[ ]	BATTERY		
[ ]	Nickel Cadmium		
[ ]	Mercury		
[ ]	Alkaline		
[ ]	Lead acid (Vehicle regulated)		
[ ]	Lead acid (Not vehicle regulated)		
[ ]	Lithium		
[ ]	Other (please supply details)		
	volts nominal. End point voltage as quoted by equipment manufacturer V		

COSITING OPERATION		
Is the equipment suitable for co-siting with:-		
GSM900	[ ]	Yes
	[ ]	No
DCS1800	[✓]	Yes
	[ ]	No

FREQUENCY RANGE LIMITATIONS
Are there any differences between the configurations, if so please state:-

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(e.g. limited frequency range due to ancillaries, i.e. combiners, duplexers, etc.) N.A

NOTE 5. The frequency shall be marked as not applicable if the equipment is able to operate on any designated channel within the specified frequency range.

4.3 DCS1800

4.3.1 Type Designation

TYPE DESIGNATION (NOTE 1)
The type designation may be either a single alphanumeric code. RRU3004

NOTES:

(1) This is the manufacturer's numeric or alphanumeric code or name that is specific to a particular equipment. It may contain information in coded form on the characteristics of the equipment e.g. frequency, power. The manufacturer is free to choose the form of the type designation.

(2) This is the number, code or trade name used by the manufacturer to describe a series or 'family' of equipment of substantially the same mechanical and electrical construction which will include a number of related equipments. This number is often referred to as the "model no."

(3) This is the manufacturer's identification number given to a specific equipment in the series or 'family' of equipments. It is often referred to as the "identification number".

4.3.2 Type of Equipment

TYPE OF EQUIPMENT	
[✓]	BTS
[ ]	Micro BTS
[ ]	Other

4.3.3 Technical Characteristics

BTS			
Max. Number of Transceivers	[2]	Dedicated BCCH Transceivers	[ ]
BTS Power Class	[1]		
BTS Power Measurement Position :-		Slow Frequency Hopping :	
Input to Combiner	[ ]	Baseband	[ ]
Antenna Connector	[✓]	Synthesizer	[✓]
DTX	[ ]	Receiver Diversity	[ ]
Micro BTS			

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Max. Number of Transceivers	[ ]	Dedicated BCCH Transceivers	[ ]
Micro BTS Power Class	[ ]		
BTS Power Measurement Position :-		Slow Frequency Hopping :-	
Input to Combiner	[ ]	Baseband	[ ]
Antenna Connector	[ ]	Synthesizer	[ ]
DTX	[ ]	Receiver Diversity	[ ]

Special Configuration
(Justify compliance)

4.3.4 Transmitter Technical Characteristics

TRANSMITTER TECHNICAL CHARACTERISTICS		
TRANSMITTER FREQUENCY		
Method of frequency generation		
	[ ]	CRYSTAL
	[✓]	SYNTHESIZER
	[ ]	OTHER
TRANSMITTER FREQUENCY RANGE		
[ ] RGSM 900 (921-960 MHz)	[ ]	EGSM 900 (925-960 MHz)
[✓]DCS 1800 (1805-1880 MHz)	[ ]	Dual Band
[ ] Other - (include frequency ranges supported)		

4.3.5 Transmitter RF Power Characteristics

TRANSMITTER RF POWER CHARACTERISTICS	
MAXIMUM RATED TRANSMITTER OUTPUT POWER per transceiver as stated by manufacturer **43.0dBm(GMSK) and 41.8dBm(8PSK)**	
Static Power Control	
Number of steps supported [6]	
Is Dynamic Power Control Supported?	
Yes [✓]	No [ ]

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If supported, how many steps? [15]

4.3.6 Transmitter Modulation Characteristics

TRANSMITTER MODULATION INPUT CHARACTERISTICS								
Modulation bit rate	270.833 kbit/s							
Type of modulation:	0.3 GMSK							
SUBCARRIER:				DIRECT:				
MSK	YES	[ ]	NO [✓]	Direct FSK	YES	[ ]	NO	[✓]
FFSK	YES	[ ]	NO [✓]	GMSK	YES	[✓]	NO	[ ]
				Generalised Tamed FM	YES	[ ]	NO	[✓]
				Multilevel State FM	YES	[ ]	NO	[✓]
				PLL-4PSK	YES	[ ]	NO	[✓]
				8 PSK	YES	[✓]	NO	[ ]
				Other				

4.3.7 Receiver Technical Characteristics

RECEIVER TECHNICAL CHARACTERISTICS		
RECEIVER - FREQUENCY		
METHOD OF FREQUENCY GENERATION		
[ ]	CRYSTAL	
[✓]	SYNTHESIZER	
[ ]	OTHER	
INTERMEDIATE FREQUENCIES		
[✓]	1st	211 MHz DCS1800
[ ]	2nd	MHz
[ ]	3rd	kHz

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Is local oscillator injection frequency higher or lower than the receiver nominal frequency? [ ] Higher (For channel..... to .....) [✓] Lower 1499~1574MHz (For channel 1710~1785MHz) DCS1800 [ ] Identical Give details
RECEIVER FREQUENCY RANGE [ ] RGSM 900 (876-915 MHz) [ ] EGSM 900 (880-915 MHz) [✓] DCS 1800 (1710-1785 MHz) [ ] Dual Band [ ] Other - (include frequency ranges supported)
[✓] Receiver Diversity

4.3.8 Common Technical Characteristics

TRANSMITTER AND RECEIVER CHARACTERISTICS
CHANNEL SEPARATION 200 kHz
State the minimum channel spacing 200 kHz

4.3.9 Temperature Range

EXTREME TEMPERATURE RANGE over which equipment is to be type tested
Minimum Temperature [- 40℃]
Maximum Temperature [+55℃]

4.3.10 Construction of the Equipment

CONSTRUCTION OF EQUIPMENT
Single unit (NOTE 4) [✓]
Multiple units [ ]
If multiple units describe each one clearly

NOTE 4 Unit means a physically separate item of the equipment.

AUTOMATIC EQUIPMENT SWITCH OFF
If the equipment is designed to automatically switch off at a predetermined voltage level which is higher or lower in value than the minimum and minimum calculated values this shall be clearly stated.

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[✓] Applies V Cut-off voltage [ ] Does not apply

4.3.11 Power Source

POWER SOURCE
[ ] AC MAINS [ ] Single phase V AC Voltage 220VAC Rate Input (176V-276V)Working range 110VAC Rated Input Dual Live (88V-132V))Working range [ ] Three phase W Power: 1955Wmax AC MAINS FREQUENCY (Hz) 50
[✓] DC INPUT V DC Voltage -48 VDC Rated Input (-36V－-57V) working range W Power: 330Wmax [ ] Other (please supply details)
[ ] BATTERY [ ] Nickel Cadmium [ ] Mercury [ ] Alkaline [ ] Lead acid (Vehicle regulated) [ ] Lead acid (Not vehicle regulated) [ ] Lithium [ ] Other (please supply details) volts nominal. End point voltage as quoted by equipment manufacturer V

CO SITING OPERATION
Is the equipment suitable for co-siting with:- GSM900 [✓] Yes [ ] No

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DCS1800	[ ]	Yes
	[ ]	No

FREQUENCY RANGE LIMITATIONS
Are there any differences between the configurations, if so please state:- (e.g. limited frequency range due to ancillaries, i.e. combiners, duplexers, etc.) N.A

NOTE 5. The frequency shall be marked as not applicable if the equipment is able to operate on any designated channel within the specified frequency range.

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5 Technical Variants and Coding

5.1 RGSM900

Type Designation				
Module	**Board**	**Rev.**	**Serial number**	**Comments**
DRRU	2	VER.A	2102315608108A000153 2102315608108A000047	Dual RRU Baseband and RF Unit

5.2 EGSM900

Type Designation				
Module	**Board**	**Rev.**	**Serial number**	**Comments**
DRRU	2	VER.A	2102315605107B000012 2102315605107B000022	Dual RRU Baseband and RF Unit

5.3 DCS1800

Type Designation				
Module	**Board**	**Rev.**	**Serial number**	**Comments**
DRRU	2	VER.A	2102315606107B000003 2102315606107B000008	Dual RRU Baseband and RF Unit

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6 Summary of Testing

IDENTIFICATION	DESCRIPTION	CONFIGURATION CODE			
		A			
HAUWEI RRU3004 900M/1800M	HUAWEI RRU3004 dual-density Edge TRX GSM900/DCS1800	X			
Clause Number	Description	TEST STATUS (NOTE 7)			
6.2	Phase error and mean frequency error	X			
6.3	Mean transmitter RF carrier power	X			
6.4	Transmitter RF carrier power versus time	X			
6.5.1	Spectrum due to modulation and wideband noise	X			
6.5.2	Switching transients spectrum	X			
6.6	Spurious emissions from the transmitter antenna connector	X			
6.7	Intermodulation attenuation	X			
6.8	Intra Base Station System intermodulation attenuation	X			
7.3	Static reference sensitivity level	X			
7.4	Multipath reference sensitivity level	X			
7.5	Reference interference level	X			
7.6	Blocking characteristics	X			
7.7	Intermodulation characteristics	X			
7.8	AM suppression	X			
7.9	Spurious emissions from the receiver antenna connector	X			

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7 Short Test plan

Test Item		Status
Transmitter parameter		
6.2	Phase error and mean frequency error	P
6.3	Mean transmitted RF carrier power	P
6.4	Transmitted RF carrier power versus time	P
6.5.1	Adjacent channel power - spectrum due to modulation and wideband noise	P
6.5.2	Adjacent channel power - switching transients spectrum	P
6.6.1	Conducted Spurious emissions from the transmitter antenna connector:	P
	inside the BTS transmit band	P
6.6.2	Conducted Spurious emissions from the transmitter antenna connector:	P
	outside the BTS transmit band	
6.7	Intermodulation attenuation	P
6.8	Intra Base Station System intermodulation attenuation	P
Receiver Parameters		
7.3	Static reference sensitivity level	P
7.4	Multipath reference sensitivity level	P
7.5	Reference interference level	P
7.6	Blocking characteristics	P
7.7	Intermodulation characteristics	P
7.8	AM suppression	P
7.9	Spurious emissions from the receiver antenna connector	P

NOTE 8. P = pass
F = fail
NTS = not tested because SFH not supported
NTD = not tested because dynamic power control not supported
NTO = not tested (other reason - state reason on test result page)

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8 Main Test Instruments

Test	Model	Manufacture	Qty.	Cal-Date	Cal Interval
Spectrum Analyzer	FSQ8	R&S	1	Jun.11, 2008	12
Vector Signal Generator	SMIQ03B	R&S	2	Jun.11, 2008	12
Digital Radio Communicati o n Tester	CMU300	R&S	1	Jul.15, 2008	12
Vector Signal Generator	HP8664A	HP	1	Jun.11, 2008	12
Test					
Power Divider	K 63 22 64 1	Kathrein	1	Mar.12, 2008.	12
Duplexer	HWT-I-	Huawei	2	Mar.12, 2008.	12
Duplexer	HWT-I-	Huawei	2	Mar.12, 2008.	12
Notch Filter	5TNF-1700/2000	KEL	4	Mar.12, 2008.	12
Directional Coupler	HDDC0810-30-20 N2	Telwave	2	Mar.12, 2008.	12
Attenuator	DTS100	Shanghai Huaxiang	2	Mar.12, 2008.	12
Load	PF100	Shanghai Huaxiang	2	Mar.12, 2008.	12
Attenuator Cable	HWT-I-	Huawei	2	Mar.12, 2008.	12
Attenuator Cable	HWT-I-	Huawei	2	Mar.12, 2008.	12
LNA	HWT-I-M900	Huawei	2	Mar.12, 2008.	12
LNA	HWT-I-	Huawei	2	Mar.12, 2008.	12
HPA	HWT-I-	Huawei	2	Mar.12, 2008.	12
HPA	HWT-I-	Huawei	2	Mar.12, 2008.	12
Band pass filter	HWT-I-	Huawei	2	Mar.12, 2008.	12
Band pass filter	HWT-I-	Huawei	2	Mar.12, 2008.	12

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9 RGSM900

9.1 Transmitter Measurements

9.1.1 Modulation Accuracy Clause 6.2

Preconditioning: 1 hour

Maximum transmitting power: 44.7dBm(GMSK) Maximum transmitting power: 43 dBm(8PSK)	Code A : RRU 3004
Measurement carried out at output of BSS (Antenna Connector)	Date of testing: 11.17 2008-11.21 2008

SFH Enabled	All time slots on: measured on slot 2
Ambient temperature 25-27 °C	Relative humidity 55-65 %

9.1.1.1 GMSK

TEST CONDITIONS		TRANSMITTER PHASE & Freq. ERROR								
		Channel B 925.2 MHz			Channel M 947.4 MHz			Channel T 959.8 MHz		
		PHASE ERROR (°)		Freq. Error	PHASE ERROR (°)		Freq. Error	PHASE ERROR (°)		Freq Error
		° rms	° peak	Hz	° rms	° peak	Hz	° rms	° peak	Hz
Tnom(27 °C)	V_{nom}(-48V)	**0.6**	**2.1**	**5**	**0.6**	**2.2**	**4**	**0.6**	**2.4**	**4**
T_{min} (-40 °C)	V_{min}(-36V)	**0.5**	**2.0**	**3**	**0.5**	**1.8**	**3**	**0.6**	**2.1**	**3**
	V_{max}(-57V)	**0.5**	**1.8**	**3**	**0.6**	**2.3**	**4**	**0.6**	**2.5**	**3**
T_{max} (55 ° C)	V_{min}(-36V)	**0.6**	**2.1**	**4**	**0.5**	**1.9**	**3**	**0.6**	**2.2**	**4**
	V_{max}(-57V)	**0.5**	**2.2**	**5**	**0.6**	**2.2**	**4**	**0.6**	**2.0**	**3**
Maximum error		**0.5**	**1.8**	**-5**	**0.5**	**-2.1**	**-5**	**0.6**	**-2.4**	**-4**
Measurement uncertainty		Equipment			Requirement					
		CMU300: <1.5° rms <5.0° peak <10Hz			<1.5° rms <5.0° peak <10Hz					

9.1.1.2 8PSK

TEST ARFCN	TEST CONDITIONS		TRANSMITTER ITEM				
			EVM rms (%)	EVM peak (%)	Freq. Error (Hz)	OOS (dB)	95th Percentile (%)
Channel B 925.2 MHz	T_{nom} (27 °C)	V_{nom}(-48V)	1.7	6.7	8	44.1	2.4
	T_{min} (-40 °C)	V_{min}(-36V)	1.6	6.8	7	44.6	2.4
		V_{max}(-57V)	1.6	6.1	5	45.2	2.4
	T_{max} (55° C)	V_{min}(-36V)	1.7	6.5	7	45.1	2.4
		V_{max}(-57V)	1.6	5.2	6	45.2	2.4

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Channel M 947.4 MHz	T_{nom} (27 °C)	V_{nom}(-48V)	1.6	5.8	6	43.9	2.5
	T_{min} (-40 °C)	V_{min}(-36V)	1.6	5.5	7	44.4	2.5
		V_{max}(-57V)	1.6	5.8	7	45.1	2.5
	T_{max} (55° C)	V_{min}(-36V)	1.7	6.2	8	44.3	2.5
		V_{max}(-57V)	1.7	6.4	5	45.1	2.5
Channel T 959.8 MHz	T_{nom} (27 °C)	V_{nom}(-48V)	2.0	8.2	9	42.4	2.7
	T_{min} (-40 °C)	V_{min}(-36V)	1.8	6.3	8	44.6	2.8
		V_{max}(-57V)	1.8	6.7	8	44.5	2.7
	T_{max} (55° C)	V_{min}(-36V)	1.9	7.1	9	43.4	2.7
		V_{max}(-57V)	1.8	6.0	8	44.4	2.7
Maximum error			2.0	8.2	9	42.4	2.8
Measurement uncertainty			Equipment			Requirement	
			CMU300: <5% rms <20Hz			<4% rms <20Hz	

9.1.1.3 Essential conformance requirements Clause 6.3.3

GMSK modulation	
rms phase error (°)	< 5.0
peak phase error (°)	< 20.0
Frequency error (Hz)	< 45

Table 2 8PSK modulation	
rms evm error (%)	< 8
peak evm error (%)	< 22
Freq. Error (Hz)	⩽45Hz
OOS (dB)	>35
95th Percentile (%)	⩽11%

9.1.1.4 Result

The equipments **passed** the requirement of this clause.

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9.1.2 Mean Transmitted RF Carrier Power Clause 6.3 - Normal conditions Static Power Control

9.1.2.1 Normal conditions Static Power Control

Pre-conditioning: 1 hour

Maximum transmitting power: 44.7 dBm(GMSK) Maximum transmitting power: 43dBm(8PSK)	Code A : RRU 3004
Measurement carried out at the input of the combiner	Date of testing: 11.17 2008-11.21 2008

SFH Enabled	All time slots active
Ambient temperature 25-27 °C	Relative humidity 55-65 %

9.1.2.1.1 GMSK

TEST CONDITIONS		BTS STATIC POWER SETTING	TRANSMITTER POWER (dBm)		
			Channel B 921.2 MHz	Channel M 933.6 MHz	Channel T 945.8 MHz
T_{nom}(27°C)	V_{nom}(-48V)	0,0 1,0 2,0 3,0 4,0 5,0 6,0	44.78 42.77 40.64 38.79 36.75 34.77 32.66	44.68 42.58 40.47 38.50 36.54 34.40 32.53	44.72 42.61 40.59 38.73 36.66 34.67 32.69
Power range over 2 x N dB steps (dB)			44.78-32.66	44.68-32.53	44.72-32.69
Maximum deviation from 2 dB per step (dB)			2.13	2.14	2.11
Measurement uncertainty (dB)			Equipment		Requirement
	Absolute level Step size		< 0.6 dB < 0.3 dB		±1.0 ±0.7

9.1.2.1.2 8PSK

TEST CONDITIONS		BTS STATIC POWER SETTING	TRANSMITTER POWER (dBm)		
			Channel B 921.2 MHz	Channel M 933.6 MHz	Channel T 945.8 MHz
T_{nom}(27°C)	V_{nom}(-48V)	0,0 1,0 2,0 3,0 4,0 5,0 6,0	43.07 42.95 40.95 38.88 36.84 34.80 32.82	43.03 42.82 40.69 38.58 36.54 34.67 32.64	43.01 42.82 40.78 38.79 36.75 34.61 32.68
Power range over 2 x N dB steps (dB)			43.07-32.82	43.03-32.64	43.01-32.68
Maximum deviation from 2 dB per step (dB)			2.07	2.13	2.14

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Measurement uncertainty (dB)		Equipment	Requirement
	Absolute level Step size	< 0.6 dB < 0.3 dB	±1.0 ±0.7

9.1.2.2 Essential conformance requirements clause 6.3.3

Normal BTS	
Absolute Level (0)	44.7.0 dBm ±2.0 dB (GMSK) 43 dBm ±2.0 dB (8PSK)
Absolute Level (1-N)	< ±3.0 dB
Power Range	2 x N dB ±3.0 dB
Step Size	2.0 dB ± 1.0 dB

9.1.2.3 Result

The equipments **passed** the requirement of this clause.

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9.1.3 Mean Transmitted RF Carrier Power Clause 6.3 -At extreme temperature and voltage Static Power Control

Maximum transmitting power: 44.7 dBm(GMSK) Maximum transmitting power: 43 dBm(8PSK)	Code A :RRU3004
Measurement carried out at the input of the combiner	Date of testing: 11.17 2008-11.21 2008

SFH Enabled	All time slots active
Ambient temperature 25-27 °C	Relative humidity 55-65 %

9.1.3.1 GMSK

TEST CONDITIONS		BTS STATIC POWER SETTING	TRANSMITTER POWER (dBm)		
			Channel B 921.2 MHz	Channel M 933.6 MHz	Channel T 945.8 MHz
T_{min}(-40 °C)	V_{min}(-36V)	0,0	45.16	45.13	45.16
	V_{max}(-57V)	0,0	45.06	45.06	45.25
T_{max}(+ 55 ° C)	V_{min}(-36V)	0,0	44.35	44.42	44.34
	V_{max}(-57V)	0,0	44.35	44.32	44.14
Measurement uncertainty (dB)			Equipment		Requirement
			< 0.6 dB < 0.3 dB		±1.0 ±0.7

9.1.3.2 8PSK

TEST CONDITIONS		BTS STATIC POWER SETTING	TRANSMITTER POWER (W/dBm)		
			Channel B 921.2 MHz	Channel M 933.6 MHz	Channel T 945.8 MHz
T_{min}(-40 °C)	V_{min}(-36V)	0,0	43.27	43.34	43.34
	V_{max}(-57V)	0,0	43.50	43.25	43.35
T_{max}(+ 55 ° C)	V_{min}(-36V)	0,0	42.69	42.67	42.56
	V_{max}(-57V)	0,0	42.70	42.56	42.54
Measurement uncertainty (dB)			Equipment		Requirement
			< 0.6 dB < 0.3 dB		±1.0 ±0.7

9.1.3.3 Essential conformance requirements clause 6.3.3

Absolute Level (0)	
Normal BTS	GMSK: 44.7dBm ±2.5 dB

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	8PSK: 43dBm ±2.5 dB

9.1.3.4 Result

The equipment **passed** the requirement of this clause.

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9.1.4 Mean Transmitted RF Carrier Power Clause 6.3 - Normal Condition Dynamic Power Control

Maximum transmitting power: 44.7dBm(GMSK) Maximum transmitting power: 43 dBm(8PSK)	Code A : RRU3004
Measurement carried out at the input of the combiner	Date of testing: 11.28.2007-12.03.2007

SFH Enabled	Measured Time slot: all active
Ambient temperature 25-27 °C	Relative humidity 55-65 %

9.1.4.1 GMSK

TEST CONDITIONS		BTS Dynamic POWER SETTING	TRANSMITTER POWER (dBm) Channel B 921.2 MHz	Channel M 933.6 MHz	Channel T 945.8 MHz
T_{nom}(27 °C)	V_{nom}(-48 V)	6,1	30.71	30.57	30.90
		6,2	28.67	28.56	28.95
		6,3	26.64	26.51	26.81
		6,4	24.72	24.65	24.83
		6,5	22.84	22.53	22.83
		6,6	20.78	20.54	20.83
		6,7	18.87	18.50	18.87
		6,8	16.86	16.49	16.88
		6,9	14.87	14.59	14.86
		6,10	12.85	12.49	12.86
		6,11	10.90	10.64	10.92
		6,12	8.87	8.61	8.93
		6,13	6.92	6.66	6.90
		6,14	4.96	4.50	4.81
		6,15	2.95	2.42	2.75
Power range over 2 x M dB steps (dB)			30.71-2.95	30.57-2.42	30.90-2.75
Maximum deviation from 2 dB per step (dB)			2.06	2.16	2.14
Measurement uncertainty (dB)			Equipment		Requirement
	absolute level step size		< 0.6 dB < 0.3 dB		±1.0 ±0.7

9.1.4.2 8PSK

TEST CONDITIONS		BTS POWER SETTING	TRANSMITTER POWER (dBm) Channel B 921.2 MHz	Channel M 940.6 MHz	Channel T 959.8 MHz
T_{nom}(27 °C)	V_{nom}(-48 V)	6,1	30.97	30.65	30.82
		6,2	28.96	28.67	28.93
		6,3	26.92	26.74	26.91
		6,4	24.89	24.70	24.82
		6,5	22.95	22.66	22.80
		6,6	20.97	20.58	20.84
		6,7	18.88	18.70	18.87
		6,8	16.97	16.60	16.89

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		6,9 6,10 6,11 6,12 6,13 6,14 6,15	15.03 12.92 10.92 9.08 7.02 5.01 2.98	14.71 12.71 10.62 8.72 6.73 4.81 2.68	14.94 12.93 10.81 8.90 6.93 4.82 2.73
Power range over 2 x M dB steps (dB)			30-97-2.98	30.65-2.68	30.82-2.73
Maximum deviation from 2 dB per step (dB)			2.11	2.13	2.12
Measurement uncertainty (dB)			Equipment		Requirement
	absolute level step size		< 0.6 dB < 0.3 dB		±1.0 ±0.7

9.1.4.3 Essential conformance requirements clause 6.3.3

Normal BTS	
Absolute Level (0)	GMSK: 44.7dBm ±3.0 dB 8PSK: 43dBm ±3.0 dB
Absolute Level (1-M)	< ±3.0 dB
Power Range	2 x M dB ±3.0 dB
Step Size	2.0 dB ± 1.5 dB

9.1.4.4 Result

The equipments **passed** the requirement of this clause.

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9.1.5 Transmitted RF Carrier Power Versus Time Clause 6.4

Maximum transmitting power: 44.7 dBm(GMSK) Maximum transmitting power: 43 dBm(8PSK)	Code A :RRU 3004
Measurement carried out at input of the combiner (TRX)	Date of testing: 11.17 2008-11.21 2008

SFH Enabled	Only slot 2 active all other slots idle
Ambient temperature 25-27 °C	Relative humidity 55-65 %

9.1.5.1 GMSK

BTS POWER SETTING	TEST RESULT		
	Channel B 921.2 MHz	Channel M 933.6 MHz	Channel T 945.8 MHz
P_{max} (0,0)	44.67	44.68	44.87
P_{min} (6,0)	32.67	32.50	32.67
Measurement uncertainty (dB)		Equipment	Requirement
	Reference Relative	< 0.6 dB < 0.6 dB	±1.0 ±1.0

9.1.5.2 8PSK

BTS POWER SETTING	TEST RESULT		
	Channel B 921.2 MHz	Channel M 933.6 MHz	Channel T 945.8 MHz
P_{max} (0)	43.27	43.03	43.00
P_{min} (see remarks)	32.99	32.56	32.70
Measurement uncertainty (dB)		Equipment	Requirement
	Reference Relative	< 0.6 dB < 0.6 dB	±1.0 ±1.0

9.1.5.3 Essential conformance requirements clause 6.4.3

Limit	As per power/time profile

Remarks
P_{min} = lowest static power level measured in sub clause 6.3.

9.1.5.4 Result

The equipments **passed** the requirement of this clause.

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9.1.6 Adjacent Channel Power Clause 6.5

9.1.6.1 Spectrum due to modulation and wideband noise clause 6.5.1

Maximum transmitting power: 44.7 dBm(GMSK) Maximum transmitting power: 43 dBm(8PSK)	Code A :RRU 3004
Measurement carried out at BSS output (antenna connector)	Date of testing: 11.17 2008-11.21 2008

SFH Enabled	All timeslots active at full power
Ambient temperature 25-27 °C	Relative humidity 55-65 %

9.1.6.1.1 GMSK Static level 0

MEASUREMENT		ADJACENT CHANNEL POWER (dBc)					
		Channel B 921.2 MHz		Channel M 933.6 MHz		Channel T 945.8 MHz	
Offset (kHz)		-	+	-	+	-	+
100		-8.9	-9.8	-9.2	-9.8	-9.3	-9.5
200		-35	-38.8	-37.1	-38.8	-37	-37.1
250		-39.1	-44.2	-42	-42.2	-41.7	-41.5
400		-63	-69.8	-70.7	-71.1	-64.6	-65.2
600		-76.7	-80.3	-81.1	-81.3	-82.0	-82.4
800		-78.5	-80.6	-81.1	-81.8	-83.2	-83.2
1000		-75.9	-81.1	-82.4	-82.8	-83.6	-83.8
1200		-76.9	-81.4	-83.2	-84.2	-85	-84.9
1400		-77.5	-81.6	-84.4	-84.9	-85.6	-85.4
1600		-77.6	-81.7	-83.6	-85.2	-86.7	-84.9
1800		-78.9	-81.8	-85.4	-86.4	-86.9	-86.6
Measurement uncertainty (dB)				Equipment		Requirement	
	Absolute power Relative power:- Offset (MHz) / Power difference (dB)			±0.6		±1.0	
	δf < 0.1 / All			±0.3		±0.5	
	0.1< δf < 1.8 / <50			±0.45		±0.7	
	0.1< δf < 1.8 / >50			±1.3		±1.5	
	δf > 1.8 / All			±1.3		±2.0	

9.1.6.1.2 GMSK Static level 1

MEASUREMENT	ADJACENT CHANNEL POWER (dBc)					
	Channel B 921.2 MHz		Channel M 933.6 MHz		Channel T 945.8 MHz	
Offset (kHz)	-	+	-	+	-	+
100	-8.9	-10.2	-9.6	-9.1	-9.3	-8.8

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200	-35.3	-39.1	-38.7	-38.9	-37	-37
250	-39.3	-44.5	-42.1	-41.6	-41.7	-42.1
400	-62.2	-68.7	-71.2	-71.5	-64.6	-65.2
600	-77.2	-79.7	-79.8	-79.9	-80	-80
800	-77.5	-79.9	-80.4	-80.7	-83.2	-83
1000	-75.5	-80.2	-81	-81.8	-82	-81.7
1200	-75.7	-80.7	-82	-82.4	-84	-84.1
1400	-77.1	-80.8	-81.9	-83.6	-85.9	-85.4
1600	-75.7	-80.8	-81.9	-83.8	-86.7	-84.9
1800	-76.8	-81	-83.5	-84.7	-86.9	-86.6

Measurement uncertainty (dB)		Equipment	Requirement
	Absolute power Relative power:- Offset (MHz) / Power difference (dB) δf < 0.1 / All 0.1< δf < 1.8 / <50 0.1< δf < 1.8 / >50 δf > 1.8 / All	±0.6 ±0.3 ±0.45 ±1.3 ±1.3	±1.0 ±0.5 ±0.7 ±1.5 ±2.0

9.1.6.1.3 GMSK Static level 2

MEASUREMENT	ADJACENT CHANNEL POWER (dBc)					
	Channel B 921.2 MHz		Channel M 933.6 MHz		Channel T 945.8 MHz	
Offset (kHz)	-	+	-	+	-	+
100	-9.4	-10.1	-9.4	-10.1	-9.4	-8.6
200	-38.0	-38.8	-37.2	-38.8	-37.2	-36.8
250	-41.7	-43.4	-41.9	-42.9	-41.7	-42.2
400	-71.8	-64.5	-71	-64.2	-63.9	-64.5
600	-79.2	-79.9	-79.4	-79.9	-80.5	-81.1
800	-79.9	-77.9	-80	-82.2	-81.7	-81.8
1000	-80.4	-78.1	-80.2	-83.7	-80.6	-80.7
1200	-81.3	-78.3	-80.9	-84.6	-83	-82.8
1400	-82	-78.5	-81	-84.2	-84.7	-84.4
1600	-82.1	-78.6	-80.7	-84.8	-84.7	-83.4
1800	-83	-78.5	-81.6	-87.9	-85.6	-84.9

Measurement uncertainty (dB)		Equipment	Requirement
	Absolute power Relative power:- Offset (MHz) / Power difference (dB) δf < 0.1 / All 0.1< δf < 1.8 / <50 0.1< δf < 1.8 / >50 δf > 1.8 / All	±0.6 ±0.3 ±0.45 ±1.3 ±1.3	±1.0 ±0.5 ±0.7 ±1.5 ±2.0

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9.1.6.1.4 GMSK Static level 3

MEASUREMENT		ADJACENT CHANNEL POWER (dBc)					
		Channel B 921.2 MHz		Channel M 933.6 MHz		Channel T 945.8 MHz	
Offset (kHz)		-	+	-	+	-	+
100		-10.0	-10.3	-9.4	-9.5	-9.1	-9.6
200		-34.9	-39.0	-37	-36.9	-37.0	-37
250		-41.9	-42.7	-42.7	-41.9	-41.9	-42
400		-63.5	-68.5	-71.1	-71	-63.4	-65.4
600		-74.1	-75.7	-78.9	-78.9	-80.6	-80.7
800		-74.4	-76	-78.5	-79.1	-81.1	-80.8
1000		-72.3	-76.2	-79.4	-79.3	-80.9	-81
1200		-73.9	-76.3	-80.2	-79.7	-83	-83
1400		-73	-76.4	-81.1	-79.7	-82.7	-82
1600		-72.4	-76.3	-80.7	-790.9	-84.3	-82.7
1800		-74.9	-76.4	-81.3	-80.6	-84.7	-84.3
Measurement uncertainty (dB)				Equipment		Requirement	
	Absolute power Relative power:- Offset (MHz) / Power difference (dB) δf < 0.1 / All 0.1< δf < 1.8 / <50 0.1< δf < 1.8 / >50 δf > 1.8 / All			±0.6 ±0.3 ±0.45 ±1.3 ±1.3		±1.0 ±0.5 ±0.7 ±1.5 ±2.0	

9.1.6.1.5 GMSK Static level 4

MEASUREMENT		ADJACENT CHANNEL POWER (dBc)					
		Channel B 921.2 MHz		Channel M 933.6 MHz		Channel T 945.8 MHz	
Offset (kHz)		-	+	-	+	-	+
100		-8.5	-10.3	-9.2	-9.6	-9.1	-9.5
200		-38.7	-39.2	-37.0	-37.6	-37.0	-37
250		-42.8	-43.8	-42.8	-42.6	-41.9	-42
400		-64.6	-64.1	-70.9	-71.2	-63.1	-65.5
600		-73	-74.2	-77.7	-77.6	-80.1	-80.7
800		-73.6	-74.4	-77.6	-77.7	-80.6	-80.4
1000		-71.9	-74.7	-78	-78.0	-80.4	-80.1
1200		-72.8	-74.7	-78.3	-78.8	-81.8	-81.5
1400		-72.3	-74.7	-79	-79.5	-82.0	-81.7
1600		-71.9	-74.6	-78	-79.3	-82.8	-81.9
1800		-73.6	-74.9	-79.4	-79.8	-83.3	-82.9
Measurement uncertainty (dB)				Equipment		Requirement	
	Absolute power Relative power:-					±1.0	

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	Offset (MHz) δf < 0.1 0.1< δf < 1.8 0.1< δf < 1.8 δf > 1.8	Power difference (dB) All <50 >50 All	±0.3 ±0.45 ±1.3 ±1.3	±0.5 ±0.7 ±1.5 ±2.0

9.1.6.1.6 GMSK Static level 5

MEASUREMENT		ADJACENT CHANNEL POWER (dBc)					
		Channel B 921.2 MHz		Channel M 933.6 MHz		Channel T 945.8 MHz	
Offset (kHz)		-	+	-	+	-	+
100		-8.4	-9.9	-9	-9.6	-9.3	-9.5
200		-37.8	-38.8	-38.7	-38.9	-37.0	-37
250		-39.3	-42.4	-41.4	-42.0	-41.9	-42.2
400		-61.9	-64.1	-70.4	-70.7	-63.3	-66.2
600		-71.2	-72.1	-76.1	-76.9	-80.4	-81
800		-71.2	-72.2	-76.2	-76.6	-80.6	-81
1000		-70.5	-72.4	-76.8	-76.6	-80.5	-82.1
1200		-71.4	-77.5	-77.4	-76.7	-82.5	-82.4
1400		-70.4	-77.5	-77.9	-77.4	-83	-82.5
1600		-70.8	-77.5	-78	-76.4	-83.1	-82.5
1800		-71.2	-77.5	-78	-77.2	-83.8	-83.2
Measurement uncertainty (dB)				Equipment		Requirement	
	Absolute power Relative power:- Offset (MHz) δf < 0.1 0.1< δf < 1.8 0.1< δf < 1.8 δf > 1.8			±0.6 ±0.3 ±0.45 ±1.3 ±1.3		±1.0 Power difference (dB) All <50 >50 All	

9.1.6.1.7 GMSK Static level 6

MEASUREMENT	ADJACENT CHANNEL POWER (dBc)					
	Channel B 921.2 MHz		Channel M 933.6 MHz		Channel T 945.8 MHz	
Offset (kHz)	-	+	-	+	-	+
100	-7.3	-9.9	-8.9	-9.4	-9.6	-9.6
200	-34.8	-39.8	-37	-36.6	-37.3	-37.2
250	-39.6	-43.7	-41.8	-41.3	-41.9	-42.1
400	-63.4	-67.3	-70.0	-70.8	-63.5	-66.3
600	-68.9	-70	-74.4	-74.5	-80.1	-80.7
800	-69.4	-70	-74.6	-75.0	-80.7	-80.5
1000	-68.8	-70.2	-75	-74.6	-80.1	-80
	-69.7	-70.2				

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1200	-69.1	-70.2	-75.3	-75.3	-81.8	-81.4
1400	-69.3	-70.2	-76.6	-75.1	-82.4	-81.8
1600	-69.8	-70.4	-75.9	-74.7	-82.1	-81.3
1800			-76.4	-75.4	-82.6	-82.6

Measurement uncertainty (dB)		Equipment	Requirement
	Absolute power Relative power:- Offset (MHz) / Power difference (dB)	±0.6	±1.0
	δf < 0.1 / All	±0.3	±0.5
	0.1< δf < 1.8 / <50	±0.45	±0.7
	0.1< δf < 1.8 / >50	±1.3	±1.5
	δf > 1.8 / All	±1.3	±2.0

9.1.6.1.8 8PSK Static level 0

MEASUREMENT	ADJACENT CHANNEL POWER (dBc)					
	Channel B 921.2 MHz		Channel M 933.6 MHz		Channel T 945.8 MHz	
Offset (kHz)	-	+	-	+	-	+
100	-7.7	-8.6	-7.8	-8.3	-8.1	-8.5
200	-36.5	-39.5	-36.8	-36.6	-36.8	-36.9
250	-41.8	-45.4	-43.2	-43.1	-43	-43.5
400	-60.6	-65.2	-60.9	-59.6	-59.2	-58.7
600	-71.8	-76.3	-72.3	-72	-72.1	-72.2
800	-77.1	-79.9	-77.7	-77.7	--78.4	-79
1000	-77.7	-81.5	-79.4	-79	-79.6	-79
1200	-77.6	-81.7	-80	-78.9	-80.4	-79.8
1400	-80.8	-81.9	-82.2	-82.2	-83.1	-83
1600	-78.8	-82.3	-82.3	-80.3	-83.4	-81.1
1800	-78.8	-82.4	-82.2	-81	-82.3	-81.6

Measurement uncertainty (dB)		Equipment	Requirement
	Absolute power Relative power:- Offset (MHz) / Power difference (dB)	±0.6	±1.0
	δf < 0.1 / All	±0.3	±0.5
	0.1< δf < 1.8 / <50	±0.45	±0.7
	0.1< δf < 1.8 / >50	±1.3	±1.5
	δf > 1.8 / All	±1.3	±2.0

9.1.6.1.9 8PSK Static level 1

MEASUREMENT	ADJACENT CHANNEL POWER (dBc)		
	Channel B 921.2 MHz	Channel M 933.6 MHz	Channel T 945.8 MHz

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Offset (kHz)	-	+	-	+	-	+
100	-7.9	-8.7	-7.9	-8.7	-7.9	-8.8
200	-36.7	-40.0	-37.7	-36.9	-37.3	-37.1
250	-41.9	-45.2	-43.6	-43.4	-43.2	-43.5
400	-59.1	-65.5	-61	-60.6	-59.2	-58.9
600	-71.9	-78.4	-73.5	-73.2	-72.4	-72.1
800	-77.2	-80.1	-78.2	-78.1	-78.7	-78.7
1000	-77.9	-81.3	-79.6	-78.7	-79.6	-79.6
1200	-77.7	-81.7	-80.2	-79.2	-80.1	-80.1
1400	-80.8	-82.	-82.9	-82	-83.4	-83.1
1600	-78.8	-82.	-82.4	-80.3	-82.8	-81.4
1800	-78.9	-82	-82.5	-81	-82	-81.4

Measurement uncertainty (dB)		Equipment	Requirement
	Absolute power Relative power:- Offset (MHz) / Power difference (dB) $\delta f < 0.1$ / All $0.1 < \delta f < 1.8$ / <50 $0.1 < \delta f < 1.8$ / >50 $\delta f > 1.8$ / All	±0.6 ±0.3 ±0.45 ±1.3 ±1.3	±1.0 ±0.5 ±0.7 ±1.5 ±2.0

9.1.6.1.10 8PSK Static level 2

MEASUREMENT	ADJACENT CHANNEL POWER (dBc)					
	Channel B 921.2 MHz		Channel M 933.6 MHz		Channel T 945.8 MHz	
Offset (kHz)	-	+	-	+	-	+
100	-7.8	-8.8	-7.6	-8.4	-7.8	-8.4
200	-39.9	-39.6	-38.8	-38.6	-38.9	-38.9
250	-40.6	-44.7	-42.4	-42.2	-42.3	-42.5
400	-60.3	-67.6	-64.6	-63.1	-59.8	-59.5
600	-71.9	-77.4	-74.4	-73.7	-73.8	-73.9
800	-77.5	-79.9	-78.5	-78	-79.3	-79.9
1000	-77	-80.6	-78.9	-78.3	-79.6	-78.9
1200	-76.3	-80.8	-79.4	-77.8	-80.1	-79.4
1400	-80.0	80.9	-81.2	-80.4	-81.9	-81.5
1600	-77.6	-80.9	-80.7	-79.1	-81.4	-80
1800	-78.3	-81	-80.7	-79.5	-81.2	-80.5

Measurement uncertainty (dB)		Equipment	Requirement
	Absolute power Relative power:- Offset (MHz) / Power difference (dB) $\delta f < 0.1$ / All $0.1 < \delta f < 1.8$ / <50 $0.1 < \delta f < 1.8$ / >50 $\delta f > 1.8$ / All	±0.6 ±0.3 ±0.45 ±1.3 ±1.3	±1.0 ±0.5 ±0.7 ±1.5 ±2.0

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9.1.6.1.11 8PSK Static level 3

MEASUREMENT		ADJACENT CHANNEL POWER (dBc)					
		Channel B 921.2 MHz		Channel M 933.6 MHz		Channel T 945.8 MHz	
Offset (kHz)		-	+	-	+	-	+
100		-7.7	-8.7	-7.9	-8.8	-7.8	-8.6
200		-37.6	-40.0	-38.9	-39.1	-38.9	-39.2
250		-40.7	-43.6	-41.2	-41.6	-41.6	-42.3
400		-60.8	-67.9	-64.5	-63.5	-59.7	-59.9
600		-73.4	-76.7	-74.2	-74.5	-75.5	-75.9
800		-76.7	-79.3	-77.7	-77.6	-79.4	-79.4
1000		-76.5	-79.6	-78	-77.2	-78.4	-79.1
1200		-78.5	-79.7	-77.8	-77.4	-79.6	-81.6
1400		-77.1	-79.9	-80.1	-79.5	-81.9	-79.6
1600		-77.2	-80.2	-79.5	-78.1	-80.8	-80.6
1800		-77.4	-80	-79.8	-78.4	-81.5	-80.6
Measurement uncertainty (dB)				Equipment		Requirement	
	Absolute power Relative power:- Offset (MHz) / Power difference (dB)			±0.6		±1.0	
	δf < 0.1 / All			±0.3		±0.5	
	0.1< δf < 1.8 / <50			±0.45		±0.7	
	0.1< δf < 1.8 / >50			±1.3		±1.5	
	δf > 1.8 / All			±1.3		±2.0	

9.1.6.1.12 8PSK Static level 4

MEASUREMENT		ADJACENT CHANNEL POWER (dBc)					
		Channel B 921.2 MHz		Channel M 933.6 MHz		Channel T 945.8 MHz	
Offset (kHz)		-	+	-	+	-	+
100		-8	-8.6	-8.1	-8.7	-7.5	-8.4
200		-37.6	-39.9	-38.9	-40.0	-39.0	-38.9
250		-40.9	-43.8	-41.2	-41.6	-41.6	-42
400		-61.7	-68.8	-64.6	-63.9	-60.3	-60.9
600		-75.4	-77.2	-75.7	-75.8	-76.4	-76.1
800		-76.4	-78.0	-77.1	-76.6	-78.8	-78.8
1000		-76.0	-78.3	-77.4	-76.8	-77.3	-77.2
1200		-75.2	-78.7	-77.5	-76.5	-78.6	-80.6
1400		-77.8	-78.6	-79.3	-78	-81.1	-78.7
1600		-76.5	-78.7	-78.7	-77.2	-80.2	-78.8
1800		-76.8	-78.6	-78.7	-77.6	-80.7	-80.2
Measurement uncertainty (dB)				Equipment		Requirement	

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	Absolute power Relative power:- Offset (MHz) / Power difference (dB) δf < 0.1 / All 0.1< δf < 1.8 / <50 0.1< δf < 1.8 / >50 δf > 1.8 / All	 ±0.3 ±0.45 ±1.3 ±1.3	±1.0 ±0.5 ±0.7 ±1.5 ±2.0

9.1.6.1.13 8PSK Static level 5

MEASUREMENT		ADJACENT CHANNEL POWER (dBc)					
		Channel B 921.2 MHz		Channel M 933.6 MHz		Channel T 945.8 MHz	
Offset (kHz)		-	+	-	+	-	+
100		-8	-8.9	-8.2	-8.6	-7.7	-8.3
200		-38	-39.9	-38.9	-39.8	-38.9	-39.2
250		-40	-43.2	-40.6	-41.8	-41.7	-42.2
400		-63.1	-69.4	-65.9	-64.7	-60.8	-62.0
600		-75.4	-76.5	-75	-75.2	-76.6	-76.7
800		-75.6	-76.7	-75.8	-75.8	-77.2	-77.0
1000		-75.3	-76.9	-76.2	-76	-76.6	-76.6
1200		-76.1	-77.2	-76.2	-75.4	-77.7	-77.4
1400		-75.6	-77.2	-77.4	-77.2	-79.9	-79.9
1600		-76.2	-77.1	-77.3	-75.9	-79.7	-78.3
1800		-76.2	-77.5	-77.6	-76.4	-79.5	-78.6
Measurement uncertainty (dB)				Equipment		Requirement	
	Absolute power Relative power:- Offset (MHz) / Power difference (dB) δf < 0.1 / All 0.1< δf < 1.8 / <50 0.1< δf < 1.8 / >50 δf > 1.8 / All			±0.6 ±0.3 ±0.45 ±1.3 ±1.3		±1.0 ±0.5 ±0.7 ±1.5 ±2.0	

9.1.6.1.14 8PSK Static level 6

MEASUREMENT	ADJACENT CHANNEL POWER (dBc)					
	Channel B 925.2 MHz		Channel M 947.4MHz		Channel T 959.8 MHz	
Offset (kHz)	-	+	-	+	-	+
100	-7.8	-8.8	-8.4	-8.5	-8.1	-8.6
200	-37.9	-40.0	-38.9	-39.4	-38.9	-39.5
250	-40.1	-42.4	-41.1	-42.1	-41.4	-42.7
400	-73.9	-70.7	-66.7	-66	-61.7	-63.8
	-74.7	-75	-74.4	-74.3	-76.8	-76.7

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600 800 1000 1200 1400 1600 1800	-74.5 -74.3 -74.9 -74.4 -74.5 -74.6	-75.3 -75.3 -75.6 -75.5 -75.5 -75.6	-74.4 -75 -75 -75.7 -75.8 -76.2	-74.7 -74.5 -74.5 -75.4 -74.7 -74.8	-77.3 -76.7 -77.8 -80.2 -79.6 -79.5	-77.5 -76.8 -77.2 -79.6 -78.5 -79.2

Measurement uncertainty (dB)		Equipment	Requirement
	Absolute power Relative power:-	±0.6	±1.0
	Offset (MHz) / Power difference (dB)		
	δf < 0.1 / All	±0.3	±0.5
	0.1< δf < 1.8 / <50	±0.45	±0.7
	0.1< δf < 1.8 / >50	±1.3	±1.5
	δf > 1.8 / All	±1.3	±2.0

9.1.6.2 Essential conformance requirements clause 6.5.3.1

Normal BTS								
Transmit Band Carrier Offset (kHz)	100	200	250	400	600 to <1200	1200 to <1800	1800 to < 6000	>6000
Limit (dBc)**	< +0.5	< -30	< -33	< -60*	< -70	< -73	< -75	< -80
	For equipment supporting 8-PSK, the requirement at 8-PSK modulation is -56 dB.							

Remarks
** For a GSM900 BTS, if the limit is below -65dBm, a value of -65dBm shall be used instead.

9.1.6.3 Result
The equipments **passed** the requirement of this clause.

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9.1.7 Switching transient spectrum clause 6.5.2

Maximum transmitting power: 44.7 dBm(GMSK) Maximum transmitting power: 43dBm(8PSK)	Code A :RRU 3004
Measurement carried out at BSS output (antenna connector)	Date of testing: 11.17 2008-11.21 2008

SFH Enabled and disabled	All timeslots active at full power
Ambient temperature 25-27 °C	Relative humidity 55-65 %

9.1.7.1 GMSK

MEASUREMENT		ADJACENT CHANNEL POWER (dBc)					
		Channel B 921.2 MHz		Channel M 933.6 MHz		Channel T 945.8 MHz	
Timeslot Power Levels	Offset (kHz)	-	+	-	+	-	+
0 (maximum static power level)	400 600 1200 1800	-75.6 -79.7 -79.7 -79.7	-67.9 -79.7 -79.7 -79.7	-69.9 -84 -84.1 -84.1	-70.1 -83.6 -84.1 -84.1	-69.5 -83.4 -83.4 -83.4	-69.1 -83.4 -83.4 -83.4
6 (minimum static power level)	400 600 1200 1800	-71.0 -71.0 -71.0 -71.0	-71.0 -71.0 -71.0 -71.0	-69.6 -76.1 -77.3 -76.7	-69 -74.7 -73.4 -77	-70.5 -77 -77 -77	-70.5 -77 -77 -77
Measurement uncertainty		Equipment			Requirement		
(dB)	Absolute power: Relative power: - Power difference (dB) <50 >50	< 0.6 dB < 0.45 dB < 1.2 dB			±1.5 ±0.7 ±1.5		

9.1.7.2 8PSK

MEASUREMENT		ADJACENT CHANNEL POWER (dBc)					
		Channel B 921.2 MHz		Channel M 933.6 MHz		Channel T 945.8 MHz	
Timeslot Power Levels	Offset (kHz)	-	+	-	+	-	+
0 (maximum static power level)	400 600 1200 1800	-60.9 -78 -78 -78	-53.5 -67.1 -78 -78	-55.5 -64.9 -78.7 -80.6	-54.6 -65.3 -79.9 -81.2	-55.1 -66.6 -80.9 -80.9	-55.1 -67.6 -80.9 -80.9
6 (minimum static power level)	400 600 1200 1800	-71.5 -71.5 -71.5 -71.5	-63.2 -71.5- 71.5- 71.5	-60.9 -73.8 -75.8 -76.3	-62.8 -74 -73.3 -73.7	-67.6 -77 -77 -77	-66.8 -77 -77 -77

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Measurement uncertainty (dB)		Equipment	Requirement
	Absolute power:	< 0.6 dB	±1.5
	Relative power: - Power difference (dB)		
	<50	< 0.45 dB	±0.7
	>50	< 1.2 dB	±1.5

9.1.7.3 Essential conformance requirements clause 6.5.2.3

GMSK				
Carrier Offset (kHz)	400	600	1200	1800
Limit	< -57dBc or < -36dBm	< -67dBc or < -36dBm	< -74dBc or < -36dBm	< -74dBc or < -36dBm

8PSK				
Carrier Offset (kHz)	400	600	1200	1800
Limit	< -52dBc or < -36dBm	< -62dBc or < -36dBm	< -74dBc or < -36dBm	< -74dBc or < -36dBm

9.1.7.4 Result

The equipments **passed** the requirement of this clause.

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9.1.8 Conducted Spurious Emissions from The Transmitter Antenna Connector Clause 6.6 - Inside the BTS transmit band clause 6.6.1 GSM Band

9.1.8.1 Inside the BTS transmit band clause 6.6.1 GSM Band

Declared maximum output power ： 44.7 dBm GMSK	Code A:RRU3004
Measurement carried out at antenna connector	Date of testing: 11.17 2008-11.21 2008

SFH Disabled	All timeslots active
Ambient temperature 25-27 °C	Relative humidity 55-65 %

Power level at which the measurement was carried out 0 (maximum):

9.1.8.2 Channel B

FREQUENCY (MHz)	SPURIOUS EMISSION LEVEL (dBm) Highest measured value	
	Channel B 921.2 MHz	
923-927.2	-44.62	
927.2-946	-50.05	
	Equipment	Requirement
Measurement uncertainty (dB)	< 1.2 dB	±1.5

9.1.8.3 Channel M

FREQUENCY (MHz)	SPURIOUS EMISSION LEVEL (dBm) Highest measured value	
	Channel M 933.6MHz	
921-927.6	-50.30	
927.6-931.8	-43.32	
935.4-939.6	-44.43	
939.6-946	-51.24	
	Equipment	Requirement
Measurement uncertainty (dB)	< 1.2 dB	±1.5

9.1.8.4 Channel T

FREQUENCY (MHz)	SPURIOUS EMISSION LEVEL (dBm) Highest measured value	
	Channel T 945.8 MHz	
921 – 939.8	-50.01	
939.8 – 944	-44.49	
	Equipment	Requirement

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Measurement uncertainty (dB)	< 1.2 dB	±1.5

9.1.8.5 Essential conformance requirements clause 6.6.1.3

Limit	< -36dBm

9.1.8.6 Result

The equipments **passed** the requirement of this clause.

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9.1.9 Conducted Spurious Emissions from The Transmitter Antenna Connector Clause 6.6 - Outside the GSM 900 transmit bands clause 6.6.2

Frequency range 100 KHz to 12.75 GHz

Declared maximum output power : 44.7 dBm GMSK	Code A: RRU 3004
Measurement carried out at antenna connector	Date of testing: 11.17 2008-11.21 2008

SFH Disabled	All timeslots active
Ambient temperature 25-27 °C	Relative humidity 55-65 %

9.1.9.1 Test result

FREQUENCY (MHz)	SPURIOUS EMISSION LEVEL (dBm) Highest measured value
	Channel M 933.6MHz
0.1 – 50.0	-59.86
50.0 – 500.0	-68.15
500.0 – 895.0	-58.60
895.0 – 905.0	-62.25
905.0 – 915.0	-57.43
915.0 – 920.0	-53.90
920.0 – 923.0	-53.21
962.0 – 965.0	-52.41
965.0 – 970.0	-53.65
970.0 – 980.0	-56.58
980.0 –990.0	-61.32
990 – 1000	-58.39
1000-8000	-53.52
10000-12750	n.a*

Measurement uncertainty (dB)		Equipment	Requirement
	f < 2 GHz 2 GHz < f < 4 GHz > 4 GHz	< 1.4 dB < 1.95 dB < 2.5 dB	±1.5 dB ±2.0 dB ±4.0 dB

*Note:Due to the max.bandwidth of the test equipment FSQ8 is to 8GHz,so the final test bandwith is to 8GHz.

9.1.9.2 Essential conformance requirements clause 6.6.3.2

Limit	<1GHz >1GHz	< -36 dBm < -30 dBm

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9.1.9.3 Result

The equipments **passed** the requirement of this clause.

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9.1.10 Conducted Spurious Emissions from The Transmitter Antenna Connector Clause 6.6 - Outside the BTS transmit band clause 6.6.2 index c,d

Index c; 1805 MHz to 1880 MHz (for GSM 900) or 921 MHz to 960 MHz (for DCS 1800)
Index d; 1710 MHz to 1785 MHz (for GSM 900) or 876 MHz to 915 MHz (for DCS 1800)

Declared maximum output power 44.7 dBm (GMSK)	Code A:RRU 3004
Measurement carried out at antenna connector	Date of testing: 11.17 2008-11.21 2008

SFH Disabled	All timeslots active
Ambient temperature 25-27 °C	Relative humidity 55-65 %

9.1.10.1 Test result

FREQUENCY (MHz)		SPURIOUS EMISSION LEVEL (dBm)	
1805 – 1880		-66.73 (B)	
1710 – 1785		-113.12 (B)	
1805 – 1880		-67.50 (M)	
1710 – 1785		-112.97(M)	
1805 – 1880		-67.56 (T)	
1710 – 1785		-113.00(T)	
Measurement uncertainty (dB)		Equipment	Requirement
	f < 2 GHz 2 GHz < f < 4 GHz > 4 GHz	< 1.4 dB < 1.95 dB < 2.5 dB	±1.5 dB ±2.0 dB ±4.0 dB

9.1.10.2 Essential conformance requirements clause 6.6.2.3

Tx Mode	RGSM 900
(1805 – 1880)limit	-47 dBm
(1710-1785) limit	-98dBm

9.1.10.3 Result

The equipments **passed** the requirement of this clause.

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9.1.11 Intermodulation Attenuation Clause 6.7

INTERMODULATION PRODUCT
FALLING IN THE TRANSMIT BAND (921.0 to 946.0 MHz) (For RGSM 900)

Declared maximum output power 44.7 dBm	Code A: RRU3004
Measurement carried out at antenna connector	Date of testing: 11.17 2008-11.21 2008

SFH Disabled	All time slots active
Ambient temperature 25-27 °C	Relative humidity 55-65 %

9.1.11.1 Intermodulation product frequency offsets greater than 6 MHz

INTERFERING SIGNAL		Intermodulation Product (dBm)					
		Channel B 921.2 MHz		Channel M 933.6 MHz		Channel T 945.8 MHz	
		+	-	+	-	+	-
(3rd order) -3.2 MHz offset		n.a	n.a	n.a	-50.68	n.a	-50.73
(3rd order) -6.2 MHz offset		n.a	n.a	-50.58	-50.60	n.a	-51.40
(3rd order) +6.2 MHz offset		-51.57	n.a	-51.76	-50.51	n.a	n.a
(3rd order) +3.2 MHz offset		-50.64	n.a	-49.55	n.a	n.a	n.a
(5th order) -3.2 MHz offset		n.a	n.a	-50.65	-51.19	n.a	-50.13
(5th order) -6.2 MHz offset		n.a	n.a	-51.49	-51.05	n.a	-51.23
(5th order) +6.2 MHz offset		-51.85	n.a	-52.13	-51.55	n.a	n.a
(5th order)+3.2 MHz offset		-51.09	n.a	-51.19	-50.68	n.a	n.a
Measurement uncertainty (dB)		Equipment			Requirement		
	Absolute level, Relative level	< 1.35 dB < 1.76 dB			±1.5 ±2.0		

The figures in parentheses ( ) indicate the offset of the intermodulation product from the channel frequency. They are included for information only and will not appear in the final test report.

9.1.11.2 Intermodulation product frequency offsets between 1.8 and 6 MHz

INTERFERING SIGNAL	Intermodulation Product (dBm)					
	Channel B 921.2 MHz		Channel M 933.6 MHz		Channel T 945.8 MHz	
	+	-	+	-	+	-
(3rd order) -3.2 MHz offset	n.a	n.a	-49.05	n.a	n.a	n.a
(3rd order) -2.0 MHz offset	n.a	n.a	-53.45	-59.31	n.a	-58.57
(3rd order) +2.0 MHz offset	-59.26	n.a	-51.40	-53.18	n.a	n.a
(3rd order) +3.2 MHz offset	n.a	n.a	n.a	-56.24	n.a	n.a
(5th order) -3.2 MHz offset	n.a	n.a	n.a	n.a	n.a	n.a

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(5th order) -2.0 MHz offset		n.a	n.a	-50.87	-64.32	n.a	-64.63
(5th order) -0.8 MHz offset		n.a	n.a	n.a	-55.93	n.a	-54.93
(5th order) +0.8 MHz offset		-54.64	n.a	-54.27	n.a	n.a	n.a
(5th order) +2.0 MHz offset		-64.20	n.a	-54.54	-59.62	n.a	n.a
(5th order) +3.2 MHz offset		n.a	n.a	n.a	n.a	n.a	n.a
Measurement uncertainty (dB)		Equipment			Requirement		
	Absolute level Relative level	< 1.35 dB < 1.76 dB			±1.5 ±2.0		

9.1.11.3 Intermodulation product frequency offsets less than 1.8 MHz

INTERFERING SIGNAL		Intermodulation Product (dBm)					
		Channel B 921.2 MHz		Channel M 933.6 MHz		Channel T 945.8 MHz	
		+	-	+	-	+	-
(3rd order) -0.8 MHz offset		n.a	n.a	-48.22	-49.99	n.a	-51.33
(3rd order) +0.8 MHz offset		-50.17	n.a	-49.63	-48.33	n.a	n.a
(5th order) -0.8 MHz offset		n.a	n.a	-49.58	n.a	n.a	n.a
(5th order) +0.8 MHz offset		n.a	n.a	n.a	-50.55	n.a	n.a
Measurement uncertainty (dB)		Equipment			Requirement		
	Absolute level Relative level	< 1.35 dB < 1.76 dB			±1.5 ±2.0		

The figures in parentheses ( ) indicate the offset of the intermodulation product from the channel frequency. They are included for information only and will not appear in the final test report.

9.1.11.4 Essential conformance requirements clause 6.7.3

NORMAL BTS								
Transmit Band Carrier Offset (kHz)	100	200	250	400	600 to <1200	1200 to <1800	1800 to < 6000	>6000
Limit (dBc)**	< +0.5	< -30	< -33	< -60	< -70	< -73	< -75	< -70dBc or < -36dBm

Remarks

* These values are dependent on the transmitter power level.
** For a GSM900 BTS, if the limit is below -65dBm, a value of -65dBm shall be used instead.

9.1.11.5 Result

The equipments **passed** the requirement of this clause.

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9.1.12 Intra Base Station System Intermodulation Attenuation Clause 6.8

INTERMODULATION PRODUCT
FALLING IN THE TRANSMIT BAND (925.0 to 960.0 MHz) (For EGSM 900)

Declared maximum output power : 44.7dBm GMSK *	Code A: RRU3004
Measurement carried out at antenna connector	Date of testing: 11.17 2008-11.21 2008

SFH Disabled	All time slots active
Ambient temperature 25-27 °C	Relative humidity 55-65 %

9.1.12.1 Intermodulation product frequency offsets greater than 6 MHz

INTERFERING SIGNAL	Intermodulation Product (dBm)					
	Channel B 921.2 MHz		Channel M 933.6 MHz		Channel T 945.8 MHz	
	+	-	+	-	+	-
(3rd order) -3.2 MHz offset	n.a	n.a	n.a	-50.75	n.a	-50.46
(3rd order) -6.2 MHz offset	n.a	n.a	-51.28	-51.22	n.a	-50.87
(3rd order) +6.2 MHz offset	-51.46	n.a	-52.11	-51.35	n.a	n.a
(3rd order) +3.2 MHz offset	-50.34	n.a	-49.90	n.a	n.a	n.a
(5th order) -3.2 MHz offset	n.a	n.a	-51.18	-50.90	n.a	-49.77
(5th order) -6.2 MHz offset	n.a	n.a	-49.97	-51.43	n.a	-51.02
(5th order) +6.2 MHz offset	-51.11	n.a	-51.89	-51.57	n.a	n.a
(5th order)+3.2 MHz offset	-51.27	n.a	-51.13	-50.51	n.a	n.a

Measurement uncertainty (dB)		Equipment	Requirement
	Absolute level, Relative level	< 1.35 dB < 1.76 dB	±1.5 ±2.0

The figures in parentheses ( ) indicate the offset of the intermodulation product from the channel frequency. They are included for information only and will not appear in the final test report.

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9.1.12.2 Intermodulation product frequency offsets between 1.8 and 6 MHz

INTERFERING SIGNAL	Intermodulation Product (dBm)					
	Channel B 921.2 MHz		Channel M 933.6 MHz		Channel T 945.8 MHz	
	+	-	+	-	+	-
(3rd order) -3.2 MHz offset	n.a	n.a	-49.66	n.a	n.a	n.a
(3rd order) -2.0 MHz offset	n.a	n.a	-52.81	-59.23	n.a	-51.21
(3rd order) +2.0 MHz offset	-59.05	n.a	-51.75	-53.49	n.a	n.a
(3rd order) +3.2 MHz offset	n.a	n.a	n.a	-56.86	n.a	n.a
(5th order) -3.2 MHz offset	n.a	n.a	n.a	n.a	n.a	n.a
(5th order) -2.0 MHz offset	n.a	n.a	-51.21	-64.31	n.a	-64.38
(5th order) -0.8 MHz offset	n.a	n.a	n.a	-55.81	n.a	-54.67
(5th order) +0.8 MHz offset	-54.84	n.a	-54.55	n.a	n.a	n.a
(5th order) +2.0 MHz offset	-64.46	n.a	-54.89	-59.93	n.a	n.a
(5th order) +3.2 MHz offset	n.a	n.a	n.a	n.a	n.a	n.a

Measurement uncertainty (dB)		Equipment	Requirement
	Absolute level Relative level	< 1.35 dB < 1.76 dB	±1.5 ±2.0

9.1.12.3 Intermodulation product frequency offsets less than 1.8 MHz

INTERFERING SIGNAL	Intermodulation Product (dBm)					
	Channel B 921.2 MHz		Channel M 933.6 MHz		Channel T 945.8 MHz	
	+	-	+	-	+	-
(3rd order) -0.8 MHz offset	n.a	n.a	-49.07	-50.15	n.a	-51.68
(3rd order) +0.8 MHz offset	-49.17	n.a	-48.80	-49.60	n.a	n.a
(5th order) -0.8 MHz offset	n.a	n.a	-50.03	n.a	n.a	n.a
(5th order) +0.8 MHz offset	n.a	n.a	n.a	-49.91	n.a	n.a

Measurement uncertainty (dB)		Equipment	Requirement
	Absolute level Relative level	< 1.35 dB < 1.76 dB	±1.5 ±2.0

The figures in parentheses ( ) indicate the offset of the intermodulation product from the channel frequency. They are included for information only and will not appear in the final test report.

9.1.12.4 Essential conformance requirements clause 6.7.3

NORMAL BTS (in the operating TX band)								
Transmit Band Carrier Offset (kHz)	100	200	250	400	600 to <1200	1200 to <1800	1800 to < 6000	>6000

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Limit (dBc)**	< +0.5	< -30	< -33	< -60	< -70	< -73	< -75	< -70dBc or < -36dBm

Remarks
** For a GSM900 BTS, if the limit is below -65dBm, a value of -65dBm shall be used instead.

9.1.12.5 Result

The equipments **passed** the requirement of this clause.

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9.2 Receiver Measurements

9.2.1 Static Reference Sensitivity Level Clause 7.3

Maximum transmitting power: 44.7 dBm(GMSK) Maximum transmitting power: 43 dBm(8PSK)	Code A :RRU 3004
Measurement performed on antenna connector	All timeslots active
	Date of testing: 11.24 2008-11.28 2008

SFH Disabled	All timeslots active, measured on slot 2
Ambient temperature 25-27 °C	Relative humidity 55-65 %

9.2.1.1 Test Result

TEST CONDITIONS	CHANNEL TYPE	RESIDUAL BIT ERROR/FRAME ERASURE RATIO (%)	
		Channel (M) 888.6MHz	
Non Hopping	TCH/FS FER** TCH/FS Class Ib** TCH/FS Class II	0.0 0.0 0.008	
Measurement uncertainty (dB)		Equipment	Requirement
		± 0.6 dB	±1.0

TEST CONDITIONS	CHANNEL TYPE	RESIDUAL BIT ERROR/FRAME ERASURE RATIO (%)	
		Channel (M) 888.6MHz	
Non Hopping	PDTCH/DBLER	0.3	
Measurement uncertainty (dB)		Equipment	Requirement
		± 0.6 dB	±1.0

9.2.1.2 Essential conformance requirements clause 7.3.3

Channel Type	Error Measure	
	FER(%)	RBER(%)
TCH/FS TCH/FS-Class Ib TCH/FS-Class II	< 0.1α (0.10 to 0.16) - -	- < 0.4/α (0.25 to 0.40) < 2.0

Where 1.0< α <1.6 and the same for both occurrences. ** Indicate which value(s) of α were used to demonstrate conformance.

Channel Type	Error Measure
	DBLER(%)
PDTCH(MCS1~9)	10

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9.2.1.3 Result

The equipments **passed** the requirement of this clause.

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9.2.2 Multipath Reference Sensitivity Level Clause 7.4

Maximum transmitting power: 44.7 dBm(GMSK) Maximum transmitting power: 43dBm(8PSK)	Code A :RRU 3004
Measurement performed on antenna connector	Both TRX on transmitting full power
	Date of testing: 11.17 2008-11.21 2008

SFH Disabled	All timeslots active, measured on slot 2
Ambient temperature 25-27 °C	Relative humidity 55-65 %

9.2.2.1 Multipath Reference Sensitivity Level – 900M

MULTIPATH TEST CONDITION	CHANNEL TYPE	RESIDUAL BIT ERROR/FRAME ERASURE RATIO (%)		
		Channel B 876.2 MHz	Channel M 888.6 MHz	Channel T 900.8 MHz
TU50/No SFH	TCH/FS FER** TCH/FS Class Ib** TCH/FS Class II	2.45 0.03 3.25	2.01 0.09 3.57	3.98 0.12 3.24
RA130 or RA250/No SFH	TCH/FS FER** TCH/FS Class Ib** TCH/FS Class II	0.46 0.02 2.12	0.50 0.01 2.25	0.64 0.03 2.65
HT100/No SFH	TCH/FS FER** TCH/FS Class Ib** TCH/FS Class II	2.38 0.21 3.42	3.56 0.24 2.43	3.42 0.18 2.41
TU50/No SFH	PDTCH/DBLER	3.5	6.1	6.5
RA130 or RA250/No SFH	PDTCH/DBLER	5.2	6.4	4.1
HT100/No SFH	PDTCH/DBLER	4.3	5.7	3.9
Measurement uncertainty (dB)		Equipment	Requirement	
		± 0.8 dB	±1.5	

9.2.2.2 Essential conformance requirements clause 7.4.3

Channel Type	Error Measure	Error Ratio for the specified propagation conditions (%)		
		TU50 (No SFH)	RA250 (No SFH)	HT100 (No SFH)
TCH/FS TCH/FS-Class Ib TCH/FS-Class II	FER RBER RBER	< 6.0α (6.0 to 9.6) < 0.4/α (0.25 to 0.40) < 8.0	< 2.0α (2.0 to 3.2) < 0.2/α (0.125 to 0.20) < 7.0	< 7.0α (7.0 to 11.2) < 0.5/α (0.3125 to 0.50) < 9.0
PDTCHMCS9	DBLER	<10%	<10%	<10%

9.2.2.3 Result

The equipments **passed** the requirement of this clause.

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9.2.3 Reference Interference Level Clause 7.5

Maximum transmitting power: 44.7dBm(GMSK) Maximum transmitting power: 43dBm(8PSK)	Code A :RRU 3004
Measurement performed on antenna connector	Both TRX on transmitting full power
	Date of testing: 11.24 2008-11.28 2008

SFH Disabled/Enabled	All timeslots active, measured on slot 2
Ambient temperature 25-27 °C	Relative humidity 55-65 %

9.2.3.1 Reference Interference Level -900M

MULTIPATH TEST CONDITION TU3	CHANNEL TYPE	RESIDUAL BIT ERROR/FRAME ERASURE RATIO (%)		
Offset (kHz)		Channel B 876.2 MHz	Channel M 888.6 MHz	Channel T 900.8 MHz
0 (SFH)	TCH/FS FER** TCH/FS Class Ib** TCH/FS Class II	n.a	n.a	n.a
0 (No SFH)	TCH/FS FER** TCH/FS Class Ib** TCH/FS Class II	7.35 0.367 2.403	8.12 0.34 2.054	6.41 0.23 2.001
+200 (No SFH)	TCH/FS FER** TCH/FS Class Ib** TCH/FS Class II	1.8 0.09 3.83	1.6 0.07 3.12	1.5 0.06 3.5
-200 (No SFH)	TCH/FS FER** TCH/FS Class Ib** TCH/FS Class II	1.7 0.12 4.1	2.0 0.17 3.78	2.7 0.16 4.26
+400 (No SFH)	TCH/FS FER** TCH/FS Class Ib** TCH/FS Class II	0 0 0	0 0 0	0 0 0
-400 (No SFH)	TCH/FS FER** TCH/FS Class Ib** TCH/FS Class II	0 0 0	0 0 0	0. 0 0
Measurement uncertainty (dB)		Equipment	Requirement	
		± 0.8 dB	+5, -0	

MULTIPATH TEST CONDITION TU50	CHANNEL TYPE	RESIDUAL BIT ERROR/FRAME ERASURE RATIO (%)		
Offset (kHz)		Channel B 876.2 MHz	Channel M 888.6 MHz	Channel T 900.8 MHz
0 (SFH)	PDTCH/MCS9 DBLER	n.a	n.a	n.a
0 (No SFH)	PDTCH/MCS9 DBLER	5.8	6.4	5.7
+200 (No SFH)	PDTCH/MCS9 DBLER	6.8	7.7	6.9
-200 (No SFH)	PDTCH/MCS9 DBLER	7.6	7.4	7.5

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+400 (No SFH)	PDTCH/MCS9 DBLER	7.3	6.9	8.5
-400 (No SFH)	PDTCH/MCS9 DBLER	7.4	7	8.3
Measurement uncertainty (dB)		Equipment	Requirement	
		± 0.8 dB	+5, -0	

9.2.3.2 Essential conformance requirements

9.2.3.2.1 Essential conformance requirements clause 7.5.3 GSM 900

Channel Type	Error Measure	Error ratio for the specified propagation conditions (%)		
		TU3 (No SFH)	TU50 (No SFH)	
		Co-channel	200 kHz offset	400 kHz offset
TCH/FS TCH/FS-Class Ib TCH/FS-Class II	FER RBER RBER	<21α (21 to 33) <2/α (1.25 to 2) < 4.0	< 6.0α (6.0 to 9.6) < 0.4/α (0.25 to 0.40) < 8.0	< 10.2α (10.2 to 16.32) < 0.72/α (0.45 to 0.72) < 8.8
PDTCH/MCS9	DBLER	<10%	10%	10%

Where 1.0<α<1.6 and the same for both occurrences in each channel condition. It may be different for different propagation conditions.
** Indicate which value(s) of α were used to demonstrate conformance.

9.2.3.3 Result

The equipments **passed** the requirement of this clause.

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9.2.4 Blocking Characteristics Clause 7.6

Maximum transmitting power: 44.7 dBm(GMSK) Maximum transmitting power: 43 dBm(8PSK)	Code A :RRU 3004
Measurement performed on antenna connector	Both TRX on transmitting full power
	Date of testing: 11.24 2008-11.28 2008

SFH Disabled	
Ambient temperature 25-27 °C	Relative humidity 55-65 %

9.2.4.1 Blocking characteristics-900M

Blocking Points (MHz)	RESIDUAL BIT ERROR RATIO - TCH/FS Class II bits (%)		
		Channel M 888.6 MHz	
		Blocking	
887.8		2.4	
889.4		2.1	
891.2		2.5	
Spurious responses			
All other frequency point		<2	
Measurement uncertainty (dB)		Equipment	Requirement
	Wanted signal Interfering signal f < 2 GHz 2 GHz < f < 4 GHz f > 4 GHz	±0.8 ±0.7 ±1.2 ±2.3	±1.0 ±0.7 ±1.5 ±3.0

Blocking Points (MHz)	RESIDUAL BIT ERROR RATIO – PDTCH/MCS5 BLER (%)		
		Channel M 888.6 MHz	
		Blocking	
887.8		7.6	
889.4		5.6	
891.2		6.3	
Spurious responses			
All other frequency point		<2	
Measurement uncertainty (dB)		Equipment	Requirement
	Wanted signal Interfering signal f < 2 GHz 2 GHz < f < 4 GHz	±0.8 ±0.7 ±1.2	±1.0 ±0.7 ±1.5

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	f > 4 GHz	±2.3	±3.0

9.2.4.2 Essential conformance requirements

9.2.4.2.1 Essential conformance requirements Blocking GSM 900 clause 7.6.3

Limit	< 2.0% (RBER)	
Allowable exceptions TCH/FS	< 45 MHz offset < 6 of which no more than 3 are consecutive	> 45 MHz offset < 24 of which no more than 3 are consecutive

Limit	< 10% (BLER)	
Allowable exceptions PDTCH/MCS5	< 45 MHz offset < 6 of which no more than 3 are consecutive	> 45 MHz offset < 24 of which no more than 3 are consecutive

9.2.4.2.2 Essential conformance requirements Spurious Response clause 7.6.3

Limit	< 2.0% at -43 dBm interfering signal level
Allowable exceptions	None

9.2.4.3 Result

The equipments **passed** the requirement of this clause.

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9.2.5 Intermodulation Characteristics Clause 7.7

Maximum transmitting power: 44.7 dBm(GMSK) Maximum transmitting power: 43dBm(8PSK)	Code A :RRU 3004
Measurement performed on antenna connector	One TRX measured
	Date of testing: 11.24 2008-11.28 2008

SFH Disabled	
Ambient temperature 25-27 °C	Relative humidity 55-65 %

9.2.5.1 INTERMODULATION CHARACTERISTICS-900M

FREQUENCY INCREMENTS OF UNWANTED SIGNALS		RESIDUAL BIT ERROR RATIO – TCH/FS Class II bits (%)		
SIG GEN A	SIG GEN B	Channel B 880.2MHz	Channel M 902.4MHz	Channel T 914.8 MHz
f_{chan}-1.6 MHz (-8 channels)	f_{chan}-0.8 MHz (-4 channels)	0	0	0
f_{chan}+1.6 MHz (+8 channels)	f_{chan}+0.8 MHz (+4 channels)	0	0	0
Measurement uncertainty (dB)			Equipment	Requirement
		Wanted signal Interfering signal	±0.8 ±0.7	±1.0 ±0.7

FREQUENCY INCREMENTS OF UNWANTED SIGNALS		RESIDUAL BIT ERROR RATIO – PDTCH/MCS9 DBLER (%)		
SIG GEN A	SIG GEN B	Channel B 880.2MHz	Channel M 902.4 MHz	Channel T 914.8 MHz
f_{chan}-1.6 MHz (-8 channels)	f_{chan}-0.8 MHz (-4 channels)	0	0	0
f_{chan}+1.6 MHz (+8 channels)	f_{chan}+0.8 MHz (+4 channels)	0	0	0
Measurement uncertainty (dB)			Equipment	Requirement
		Wanted signal Interfering signal	±0.8 ±0.7	±1.0 ±0.7

9.2.5.2 Essential conformance requirements clause 7.7.3

Limit TCH/FS	< 2.0% (RBER)
Limit PDTCH	< 10% (DBLER)

9.2.5.3 Result

The equipments **passed** the requirement of this clause.

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9.2.6 AM Suppression Clause 7.8

Maximum transmitting power: 44.7dBm(GMSK)* Maximum transmitting power: 43 dBm(8PSK) *	Code A :RRU 3004
Measurement performed on antenna connector	One TRX measured
	Date of testing: 12.18 2007-12.19 2007

SFH Disabled	
Ambient temperature 25-27 °C	Relative humidity 55-65 %

9.2.6.1 AM SUPPRESSION-900M

INTERFERER FREQUENCY	CHANNEL TYPE	RESIDUAL BIT ERROR/FRAME ERASURE RATIO (%)		
		-	Channel M 888.6MHz	-
909MHz	TCH/FS FER** TCH/FS-Class Ib** TCH/FS-Class II		0 0 0.000	
895.4MHz	PDTCH/MCS9 DBLER		0 0 0.000	
Measurement Uncertainty (dB)			Equipment	Requirement
		Wanted signal Interfering signal	±0.8 ±0.7	±1.0 ±0.7

9.2.6.2 Essential conformance requirements clause 7.8.3

Channel Type	Error Measure	
	FER (%)	RBER (%)
TCH/FS TCH/FS-Class Ib TCH/FS-Class II	< 0.1α (0.1 to 0.16) - -	- < 0.4/α (0.25 to 0.40) < 2.0

Where 1.0<α<1.6 and the same for both occurrences in each channel condition. It may be different for different propagation conditions. ** Indicate which value(s) of α were used to demonstrate conformance.

Channel Type	Error Measure
	DBLER (%)
PDTCH/MCS9	< 10

9.2.6.3 Result

The equipments **passed** the requirement of this clause.

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9.2.7 Spurious Emissions from the Receiver Antenna Connector Clause 7.9

Declared maximum output power 44.7 dBm GMSK Declared maximum output power 43dBm 8PSK	Code A: RRU 3004
Measurement performed on antenna connector	One TRX active at full power all time slots
	Date of testing: 11.24 2008-11.28 2008

SFH Disabled	
Ambient temperature 25-27 °C	Relative humidity 55-65 %

9.2.7.1 Spurious Emission-900M

Note:

According to the requirement of the clause 7.9 (Spurious emissions from the receiver antenna connector) of ETSI TS 101 087, for a BTS equipped with a duplexer or duplexers, the requirements of Spurious emissions from the transmitter antenna connector apply to any antenna connector which is a port for both transmitter(s) and receiver(s) as the RRU3004 has.

Therefore, this test need NOT be performed (on these ports) for RRU3004, see section 9.1.8, 9.1.9 and 9.1.10 of this test report for reference.

9.2.7.2 Essential conformance requirements clause 7.9.3

Frequency range	9 kHz - 1000 MHz	1 - 12.75 GHz
Limit	< -57dBm	< -47dBm

Note: If the receivers operate in non-duplex mode and are diversity, then both parts are to be tested.

9.2.7.3 Result

This test need NOT be performed (on these ports) for RRU3004, see section 9.1.8, 9.1.9 and 9.1.10 of this test report for reference.

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9.3 Appendixes

Appendix A	Graphs of Transmitter - Frequency error and phase error	Page.2
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10 EGSM900

10.1 Transmitter Measurements

10.1.1 Modulation Accuracy Clause 6.2

Preconditioning: 1 hour

Maximum transmitting power: 44.7dBm(GMSK) Maximum transmitting power: 43 dBm(8PSK)	Code A : RRU 3004
Measurement carried out at output of BSS (Antenna Connector)	Date of testing: 11.15 2007-11.20 2007

SFH Enabled	All time slots on: measured on slot 2
Ambient temperature 25-27 °C	Relative humidity 55-65 %

10.1.1.1 GMSK

TEST CONDITIONS		TRANSMITTER PHASE & Freq. ERROR								
		Channel B 925.2 MHz			Channel M 947.4 MHz			Channel T 959.8 MHz		
		PHASE ERROR (°)		Freq. Error	PHASE ERROR (°)		Freq. Error	PHASE ERROR (°)		Freq Error
		° rms	° peak	Hz	° rms	° peak	Hz	° rms	° peak	Hz
Tnom(27 °C)	V_{nom}(-48V)	0.5	-1.7	-4	0.4	-1.8	-5	0.6	-2.2	3
T_{min} (-40 °C)	V_{min}(-36V)	0.4	-1.7	-5	0.5	1.9	-3	0.6	-2	-3
	V_{max}(-57V)	0.5	-1.8	-4	0.5	-2.1	-3	0.5	-2	-3
T_{max} (55 ° C)	V_{min}(-36V)	0.5	-1.8	3	0.6	-2.1	-4	0.6	-2	-4
	V_{max}(-57V)	0.5	1.8	4	0.5	-2.1	-3	0.6	-2.4	-3
Maximum error		**0.5**	**1.8**	**-5**	**0.5**	**-2.1**	**-5**	**0.6**	**-2.4**	**-4**
Measurement uncertainty		Equipment			Requirement					
		CMU300: <1.5° rms <5.0° peak <10Hz			<1.5° rms <5.0° peak <10Hz					

10.1.1.2 8PSK

TEST ARFCN	TEST CONDITIONS		TRANSMITTER ITEM				
			EVM rms (%)	EVM peak (%)	Freq. Error (Hz)	OOS (dB)	95th Percentile (%)
Channel B 925.2	T_{nom} (27 °C)	V_{nom}(-48V)	5.7	14.7	-6	-42.3	8.3
	T_{min} (-40 °C)	V_{min}(-36V)	5.8	16.2	-7	-41.6	8.6
		V_{max}(-57V)	5.7	14.7	-6	-41.8	8.2

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MHz	T_{max} (55° C)	V_{min}(-36V)	5.9	15.5	-6	-41	8.7
		V_{max}(-57V)	6	15.3	6	-41.2	8.6
Channel M 947.4 MHz	T_{nom} (27 °C)	V_{nom}(-48V)	4.2	15.5	-6	-40.5	6.3
	T_{min} (-40 °C)	V_{min}(-36V)	3.8	13	7	-42	5.9
		V_{max}(-57V)	3.9	14.7	-7	-40.7	5.9
	T_{max} (55° C)	V_{min}(-36V)	3.9	14.1	7	-41.7	5.9
		V_{max}(-57V)	3.7	14.9	-7	-41.6	6
Channel T 959.8 MHz	T_{nom} (27 °C)	V_{nom}(-48V)	3.7	14.2	9	-42	5.7
	T_{min} (-40 °C)	V_{min}(-36V)	3.6	12.6	7	-41.7	5.7
		V_{max}(-57V)	3.8	12.7	8	-42.7	5.5
	T_{max} (55° C)	V_{min}(-36V)	3.7	14.5	-9	-42.2	5.6
		V_{max}(-57V)	3.6	13.6	-8	-41.5	5.5
Maximum error			**6**	**16.2**	**9**	**-40.5**	**8.7**
Measurement uncertainty			Equipment			Requirement	
			CMU300: <5% rms <20Hz			<4% rms <20Hz	

10.1.1.3 Essential conformance requirements Clause 6.3.3

GMSK modulation	
rms phase error (°)	< 5.0
peak phase error (°)	< 20.0
Frequency error (Hz)	< 45

Table 3 8PSK modulation	
rms evm error (%)	< 8
peak evm error (%)	< 22
Freq. Error (Hz)	⩽45Hz
OOS (dB)	>35
95th Percentile (%)	⩽11%

10.1.1.4 Result

The equipments **passed** the requirement of this clause.

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10.1.2 Mean Transmitted RF Carrier Power Clause 6.3 - Normal conditions Static Power Control

10.1.2.1 Normal conditions Static Power Control

Pre-conditioning: 1 hour

Maximum transmitting power: 44.7 dBm(GMSK) Maximum transmitting power: 43dBm(8PSK)	Code A : RRU 3004
Measurement carried out at the input of the combiner	Date of testing:11.21.2007

SFH Enabled	All time slots active
Ambient temperature 25-27 °C	Relative humidity 55-65 %

10.1.2.1.1 GMSK

TEST CONDITIONS		BTS STATIC POWER SETTING	TRANSMITTER POWER (dBm)		
			Channel B 925.2 MHz	Channel M 947.4 MHz	Channel T 959.8 MHz
T_{nom}(27°C)	V_{nom}(-48V)	0,0 1,0 2,0 3,0 4,0 5,0 6,0	44.72 42.73 40.64 38.65 36.65 34.67 32.59	44.79 42.78 40.86 38.95 36.95 35.12 33.05	44.79 42.78 40.64 38.65 36.68 34.63 32.71
Power range over 2 x N dB steps (dB)			44.72-32.59	44.79-33.05	44.79-32.71
Maximum deviation from 2 dB per step (dB)			***2.09***	***2.07***	***2.14***
Measurement uncertainty (dB)			Equipment		Requirement
	Absolute level Step size		< 0.6 dB < 0.3 dB		±1.0 ±0.7

10.1.2.1.2 8PSK

TEST CONDITIONS		BTS STATIC POWER SETTING	TRANSMITTER POWER (dBm)		
			Channel B 921.2 MHz	Channel M 940.6 MHz	Channel T 959.8 MHz
T_{nom}(27°C)	V_{nom}(-48V)	0,0 1,0 2,0 3,0 4,0 5,0 6,0	43.08 42.91 40.90 38.88 36.90 34.75 32.66	43.10 42.96 41.17 39.11 37.09 35.12 33.05	42.95 42.77 40.75 38.74 36.73 34.73 32.76
Power range over 2 x N dB steps (dB)			43.08-32.66	43.10-33.05	42.95-32.76
Maximum deviation from 2 dB per step (dB)			***2.15***	***2.07***	***2.02***

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Measurement uncertainty (dB)		Equipment	Requirement
	Absolute level Step size	< 0.6 dB < 0.3 dB	±1.0 ±0.7

10.1.2.2 Essential conformance requirements clause 6.3.3

Normal BTS	
Absolute Level (0)	44.7.0 dBm ±2.0 dB (GMSK) 43 dBm ±2.0 dB (8PSK)
Absolute Level (1-N)	< ±3.0 dB
Power Range	2 x N dB ±3.0 dB
Step Size	2.0 dB ± 1.0 dB

10.1.2.3 Result

The equipments **passed** the requirement of this clause.

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10.1.3 Mean Transmitted RF Carrier Power Clause 6.3 -At extreme temperature and voltage Static Power Control

Maximum transmitting power: 44.7 dBm(GMSK) Maximum transmitting power: 43 dBm(8PSK)	Code A :RRU3004
Measurement carried out at the input of the combiner	Date of testing: 11.22.2007-11.27 2007

SFH Enabled	All time slots active
Ambient temperature 25-27 °C	Relative humidity 55-65 %

10.1.3.1 GMSK

TEST CONDITIONS		BTS STATIC POWER SETTING	TRANSMITTER POWER (dBm)		
			Channel B 925.2 MHz	Channel M 947.4 MHz	Channel T 959.8 MHz
T_{min}(-40 °C)	V_{min}(-36V)	0,0	44.82	44.89	44.81
	V_{max}(-57V)	0,0	44.89	44.88	44.82
T_{max}(+ 55 ° C)	V_{min}(-36V)	0,0	44.52	44.63	44.45
	V_{max}(-57V)	0,0	44.51	44.55	44.55
Measurement uncertainty (dB)			Equipment		Requirement
			< 0.6 dB < 0.3 dB		±1.0 ±0.7

10.1.3.2 8PSK

TEST CONDITIONS		BTS STATIC POWER SETTING	TRANSMITTER POWER (W/dBm)		
			Channel B 925.2 MHz	Channel M 947.4 MHz	Channel T 959.8 MHz
T_{min}(-40 °C)	V_{min}(-36V)	0,0	43.08	43.07	43.06
	V_{max}(-57V)	0,0	42.98	42.97	42.98
T_{max}(+ 55 ° C)	V_{min}(-36V)	0,0	42.73	42.88	42.72
	V_{max}(-57V)	0,0	42.70	42.79	42.74
Measurement uncertainty (dB)			Equipment		Requirement
			< 0.6 dB < 0.3 dB		±1.0

10.1.3.3 Essential conformance requirements clause 6.3.3

Absolute Level (0)	
Normal BTS	GMSK: 44.7dBm ±2.5 dB 8PSK: 43dBm ±2.5 dB

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10.1.3.4 Result

The equipment **passed** the requirement of this clause.

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10.1.4 Mean Transmitted RF Carrier Power Clause 6.3 - Normal Condition Dynamic Power Control

Maximum transmitting power: 44.7dBm(GMSK) Maximum transmitting power: 43 dBm(8PSK)	Code A : RRU3004
Measurement carried out at the input of the combiner	Date of testing: 11.28.2007-12.03.2007

SFH Enabled	Measured Time slot: all active
Ambient temperature 25-27 °C	Relative humidity 55-65 %

10.1.4.1 GMSK

TEST CONDITIONS		BTS Dynamic POWER SETTING	TRANSMITTER POWER (dBm) Channel B 925.2 MHz	Channel M 947.4 MHz	Channel T 959.8 MHz
T_{nom}(27 °C)	V_{nom}(-48 V)	6,1	30.62	31.04	30.73
		6,2	28.60	29.02	28.72
		6,3	26.70	27.13	26.76
		6,4	24.67	25.13	24.77
		6,5	22.60	23.12	22.64
		6,6	20.67	21.21	20.65
		6,7	18.66	19.20	18.71
		6,8	16.70	17.26	16.66
		6,9	14.65	15.21	14.71
		6,10	12.58	13.12	12.59
		6,11	10.74	11.13	10.67
		6,12	8.71	9.14	8.73
		6,13	6.72	7.20	6.72
		6,14	4.70	5.20	4.62
		6,15	2.78	3.23	2.57
Power range over 2 x M dB steps (dB)			32.59-2.78	33.05-3.23	32.71-2.57
Maximum deviation from 2 dB per step (dB)			**2.07**	**2.09**	**2.13**
Measurement uncertainty (dB)			Equipment		Requirement
	absolute level		< 0.6 dB		±1.0
	step size		< 0.3 dB		±0.7

10.1.4.2 8PSK

TEST CONDITIONS		BTS POWER SETTING	TRANSMITTER POWER (dBm) Channel B 921.2 MHz	Channel M 940.6 MHz	Channel T 959.8 MHz
T_{nom}(27 °C)	V_{nom}(-48 V)	6,1	30.75	31.08	30.70
		6,2	28.76	29.05	28.71
		6,3	26.77	27.07	26.72
		6,4	24.75	25.08	24.73
		6,5	22.78	23.09	22.74
		6,6	20.78	21.06	20.70
		6,7	18.70	19.06	18.69

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		6,8 6,9 6,10 6,11 6,12 6,13 6,14 6,15	16.75 14.77 12.79 10.64 8.75 6.77 4.62 2.63	17.06 15.14 13.14 11.15 9.17 7.19 5.22 3.11	16.81 14.76 12.76 10.78 8.81 6.82 4.71 2.69
Power range over 2 x M dB steps (dB)			32.66-2.63	33.05-3.11	32.76-2.69
Maximum deviation from 2 dB per step (dB)			**2.15**	**2.11**	**2.11**
Measurement uncertainty (dB)			Equipment		Requirement
	absolute level step size		< 0.6 dB < 0.3 dB		±1.0 ±0.7

10.1.4.3 Essential conformance requirements clause 6.3.3

Normal BTS	
Absolute Level (0)	GMSK: 44.7dBm ±3.0 dB 8PSK: 43dBm ±3.0 dB
Absolute Level (1-M)	< ±3.0 dB
Power Range	2 x M dB ±3.0 dB
Step Size	2.0 dB ± 1.5 dB

10.1.4.4 Result

The equipments **passed** the requirement of this clause.

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10.1.5 Transmitted RF Carrier Power Versus Time Clause 6.4

Maximum transmitting power: 44.7 dBm(GMSK) Maximum transmitting power: 43 dBm(8PSK)	Code A :RRU 3004
Measurement carried out at input of the combiner (TRX)	Date of testing: 12.04 2007

SFH Enabled	Only slot 2 active all other slots idle
Ambient temperature 25-27 °C	Relative humidity 55-65 %

10.1.5.1 GMSK

BTS POWER SETTING	TEST RESULT		
	Channel B 925.2 MHz	Channel M 947.4 MHz	Channel T 959.8 MHz
P_{max} (0,0)	44.8dBm	44.79dBm	44.79dBm
P_{min} (6,0)	32.76dBm	33.05dBm	32.71dBm
Measurement uncertainty (dB)		Equipment	Requirement
	Reference Relative	< 0.6 dB < 0.6 dB	±1.0 ±1.0

10.1.5.2 8PSK

BTS POWER SETTING	TEST RESULT		
	Channel B 925.2 MHz	Channel M 947.4 MHz	Channel T 959.8 MHz
P_{max} (0)	42.93dBm	43.10dBm	42.95dBm
P_{min} (see remarks)	32.74dBm	33.05dBm	32.76dBm
Measurement uncertainty (dB)		Equipment	Requirement
	Reference Relative	< 0.6 dB < 0.6 dB	±1.0 ±1.0

10.1.5.3 Essential conformance requirements clause 6.4.3

Limit	As per power/time profile

Remarks
P_{min} = lowest static power level measured in sub clause 6.3.

10.1.5.4 Result

The equipments **passed** the requirement of this clause.

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10.1.6 Adjacent Channel Power Clause 6.5

10.1.6.1 Spectrum due to modulation and wideband noise clause 6.5.1

Maximum transmitting power: 44.7 dBm(GMSK) Maximum transmitting power: 43 dBm(8PSK)	Code A :RRU 3004
Measurement carried out at BSS output (antenna connector)	Date of testing: 12.05 2006-12.08. 2007

SFH Enabled	All timeslots active at full power
Ambient temperature 25-27 °C	Relative humidity 55-65 %

10.1.6.1.1 GMSK Static level 0

MEASUREMENT		ADJACENT CHANNEL POWER (dBc)					
		Channel B 925.2 MHz		Channel M 947.4 MHz		Channel T 959.8 MHz	
Offset (kHz)		-	+	-	+	-	+
100		-9.8	-8.9	-9.2	-9.8	-9.3	-9.5
200		-38.8	-35	-38.8	-37.1	-37	-37.1
250		-44.2	-39.1	-42.2	-42	-41.7	-41.5
400		-69.8	-63	-71.1	-70.7	-64.6	-65.2
600		-80.3	-76.7	-81.3	-81.1	-82.0	-82.4
800		-80.6	-78.5	-81.8	-81.1	-83.2	-83.2
1000		-81.1	-75.9	-82.8	-82.4	-83.6	-83.8
1200		-81.4	-76.9	-84.2	-83.2	-85	-84.9
1400		-81.6	-77.5	-84.9	-84.4	-85.6	-85.4
1600		-81.7	-77.6	-85.2	-83.6	-86.7	-84.9
1800		-81.8	-78.9	-86.4	-85.4	-86.9	-86.6
Measurement uncertainty (dB)				Equipment		Requirement	
	Absolute power Relative power:- Offset (MHz) δf < 0.1 0.1< δf < 1.8 0.1< δf < 1.8 δf > 1.8		Power difference (dB) All <50 >50 All	±0.6 ±0.3 ±0.45 ±1.3 ±1.3		±1.0 ±0.5 ±0.7 ±1.5 ±2.0	

10.1.6.1.2 GMSK Static level 1

MEASUREMENT	ADJACENT CHANNEL POWER (dBc)					
	Channel B 925.2 MHz		Channel M 947.4 MHz		Channel T 959.8 MHz	
Offset (kHz)	-	+	-	+	-	+

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100	-10.2	-8.9	-9.1	-9.6	-9.3	-8.8
200	-39.1	-35.3	-38.9	-38.7	-37	-37
250	-44.5	-39.3	-41.6	-42.1	-41.7	-42.1
400	-68.7	-62.2	-71.5	-71.2	-64.6	-65.2
600	-79.7	-77.2	-79.9	-79.8	-80	-80
800	-79.9	-77.5	-80.7	-80.4	-83.2	-83
1000	-80.2	-75.5	-81.8	-81	-82	-81.7
1200	-80.7	-75.7	-82.4	-82	-84	-84.1
1400	-80.8	-77.1	-83.6	-81.9	-85.9	-85.4
1600	-80.8	-75.7	-83.8	-81.9	-86.7	-84.9
1800	-81	-76.8	-84.7	-83.5	-86.9	-86.6

Measurement uncertainty (dB)		Equipment	Requirement
	Absolute power Relative power:- Offset (MHz) / Power difference (dB)	±0.6	±1.0
	δf < 0.1 / All	±0.3	±0.5
	0.1< δf < 1.8 / <50	±0.45	±0.7
	0.1< δf < 1.8 / >50	±1.3	±1.5
	δf > 1.8 / All	±1.3	±2.0

10.1.6.1.3 GMSK Static level 2

MEASUREMENT	ADJACENT CHANNEL POWER (dBc)					
	Channel B 925.2 MHz		Channel M 947.4 MHz		Channel T 959.8 MHz	
Offset (kHz)	-	+	-	+	-	+
100	-10.1-	-9.4	-9.4	-10.1	-9.4	-8.6
200	38.8	-38.0	-37.2	-38.8	-37.2	-36.8
250	-43.4	-41.7	-41.9	-42.9	-41.7	-42.2
400	-64.5	-71.8	-71	-64.2	-63.9	-64.5
600	-79.9	-79.2	-79.4	-79.9	-80.5	-81.1
800	-77.9	-79.9	-80	-82.2	-81.7	-81.8
1000	-78.1	-80.4	-80.2	-83.7	-80.6	-80.7
1200	-78.3	-81.3	-80.9	-84.6	-83	-82.8
1400	-78.5	-82	-81	-84.2	-84.7	-84.4
1600	-78.6	-82.1	-80.7	-84.8	-84.7	-83.4
1800	-78.5	-83-	-81.6	-87.9	-85.6	-84.9

Measurement uncertainty (dB)		Equipment	Requirement
	Absolute power Relative power:- Offset (MHz) / Power difference (dB)	±0.6	±1.0
	δf < 0.1 / All	±0.3	±0.5
	0.1< δf < 1.8 / <50	±0.45	±0.7
	0.1< δf < 1.8 / >50	±1.3	±1.5
	δf > 1.8 / All	±1.3	±2.0

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10.1.6.1.4 GMSK Static level 3

MEASUREMENT		ADJACENT CHANNEL POWER (dBc)					
		Channel B 925.2 MHz		Channel M 947.4 MHz		Channel T 959.8 MHz	
Offset (kHz)		-	+	-	+	-	+
100		-10.3	-10.0	-9.4	-9.5	-9.1	-9.6
200		-39.0	-34.9-	-37	-36.9	-37.0	-37
250		-42.7	41.9	-42.7	-41.9	-41.9	-42
400		-68.5	-63.5	-71.1	-71	-63.4	-65.4
600		-75.7	-74.1	-78.9	-78.9	-80.6	-80.7
800		-76	-74.4	-78.5	-79.1	-81.1	-80.8
1000		-76.2	-72.3	-79.4	-79.3	-80.9	-81
1200		-76.3	-73.9	-80.2	-79.7	-83	-83
1400		-76.4	-73	-81.1	-79.7	-82.7	-82
1600		-76.3	-72.4	-80.7	-790.9	-84.3	-82.7
1800		-76.4	-74.9	-81.3	-80.6	-84.7	-84.3
Measurement uncertainty (dB)				Equipment		Requirement	
	Absolute power Relative power:- Offset (MHz) / Power difference (dB)			±0.6		±1.0	
	$\delta f < 0.1$ / All			±0.3		±0.5	
	$0.1 < \delta f < 1.8$ / <50			±0.45		±0.7	
	$0.1 < \delta f < 1.8$ / >50			±1.3		±1.5	
	$\delta f > 1.8$ / All			±1.3		±2.0	

10.1.6.1.5 GMSK Static level 4

MEASUREMENT		ADJACENT CHANNEL POWER (dBc)					
		Channel B 925.2 MHz		Channel M 947.4MHz		Channel T 959.8 MHz	
Offset (kHz)		-	+	-	+	-	+
100		-10.3	-8.5	-9.6	-9.2	-9.1	-9.5
200		-39.2	-38.7	-37.6	-37.0	-37.0	-37
250		-43.8	-42.8	-42.6	-42.8	-41.9	-42
400		-64.1	-64.6	-71.2	-70.9	-63.1	-65.5
600		-74.2	-73	-77.6	-77.7	-80.1	-80.7
800		-74.4	-73.6	-77.7	-77.6	-80.6	-80.4
1000		-74.7	-71.9	-78.0	-78	-80.4	-80.1
1200		-74.7	-72.8	-78.8	-78.3	-81.8	-81.5
1400		-74.7	-72.3	-79.5	-79	-82.0	-81.7
1600		-74.6	-71.9	-79.3	-78	-82.8	-81.9
1800		-74.9	-73.6	-79.8	-79.4	-83.3	-82.9
Measurement uncertainty (dB)				Equipment		Requirement	
	Absolute power Relative power:-					±1.0	

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	Offset (MHz)	Power difference (dB)		
	δf < 0.1	All	±0.3	±0.5
	0.1< δf < 1.8	<50	±0.45	±0.7
	0.1< δf < 1.8	>50	±1.3	±1.5
	δf > 1.8	All	±1.3	±2.0

10.1.6.1.6 GMSK Static level 5

MEASUREMENT		ADJACENT CHANNEL POWER (dBc)					
		Channel B 925.2 MHz		Channel M 947.4 MHz		Channel T 959.8 MHz	
Offset (kHz)		-	+	-	+	-	+
100		-9.9	-8.4	-9	-9.6	-9.3	-9.5
200		-38.8	-37.8	-38.7	-38.9	-37.0	-37
250		-42.4	-39.3	-41.4	-42.0	-41.9	-42.2
400		-64.1	-61.9	-70.4	-70.7	-63.3	-66.2
600		-72.1	-71.2	-76.1	-76.9	-80.4	-81
800		-72.2	-71.2	-76.2	-76.6	-80.6	-81
1000		-72.4	-70.5	-76.8	-76.6	-80.5	-82.1
1200		-77.5	-71.4	-77.4	-76.7	-82.5	-82.4
1400		-77.5	-70.4	-77.9	-77.4	-83	-82.5
1600		-77.5	-70.8	-78	-76.4	-83.1	-82.5
1800		-77.5	-71.2	-78	-77.2	-83.8	-83.2
Measurement uncertainty (dB)				Equipment		Requirement	
	Absolute power			±0.6		±1.0	
	Relative power:-						
	Offset (MHz)	Power difference (dB)					
	δf < 0.1	All		±0.3		±0.5	
	0.1< δf < 1.8	<50		±0.45		±0.7	
	0.1< δf < 1.8	>50		±1.3		±1.5	
	δf > 1.8	All		±1.3		±2.0	

10.1.6.1.7 GMSK Static level 6

MEASUREMENT	ADJACENT CHANNEL POWER (dBc)					
	Channel B 925.2 MHz		Channel M 947.4MHz		Channel T 959.8 MHz	
Offset (kHz)	-	+	-	+	-	+
100	-9.9	-7.3	-8.9	-9.4	-9.6	-9.6
200	-39.8	-34.8	-37	-36.6	-37.3	-37.2
250	-43.7	-39.6	-41.8	-41.3	-41.9	-42.1
400	-67.3	-63.4	-70.0	-70.8	-63.5	-66.3
600	-70	-68.9	-74.4	-74.5	-80.1	-80.7
800	-70	-69.4	-74.6	-75.0	-80.7	-80.5
1000	-70.2	-68.8	-75	-74.6	-80.1	-80

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1200	-70.2	-69.7	-75.3	-75.3	-81.8	-81.4
1400	-70.2	-69.1	-76.6	-75.1	-82.4	-81.8
1600	-70.2	-69.3	-75.9	-74.7	-82.1	-81.3
1800	-70.4	-69.8	-76.4	-75.4	-82.6	-82.6

Measurement uncertainty (dB)		Equipment	Requirement
	Absolute power Relative power:- Offset (MHz) / Power difference (dB)	±0.6	±1.0
	δf < 0.1 / All	±0.3	±0.5
	0.1< δf < 1.8 / <50	±0.45	±0.7
	0.1< δf < 1.8 / >50	±1.3	±1.5
	δf > 1.8 / All	±1.3	±2.0

10.1.6.1.8 8PSK Static level 0

MEASUREMENT	ADJACENT CHANNEL POWER (dBc)					
	Channel B 925.2 MHz		Channel M 947.4MHz		Channel T 959.8 MHz	
Offset (kHz)	-	+	-	+	-	+
100	-8.6	-7.7	-7.8	-8.3	-8.1	-8.5
200	-39.5	-36.5	-36.8	-36.6	-36.8	-36.9
250	-45.4	-41.8	-43.2	-43.1	-43	-43.5
400	-65.2	-60.6	-60.9	-59.6	-59.2	-58.7
600	-76.3	-71.8	-72.3	-72	-72.1	-72.2
800	-79.9	-77.1	-77.7	-77.7	--78.4	-79
1000	-81.5	-77.7	-79.4	-79	-79.6	-79
1200	-81.7	-77.6	-80	-78.9	-80.4	-79.8
1400	-81.9	-80.8	-82.2	-82.2	-83.1	-83
1600	-82.3	-78.8	-82.3	-80.3	-83.4	-81.1
1800	-82.4	-78.8	-82.2	-81	-82.3	-81.6

Measurement uncertainty (dB)		Equipment	Requirement
	Absolute power Relative power:- Offset (MHz) / Power difference (dB)	±0.6	±1.0
	δf < 0.1 / All	±0.3	±0.5
	0.1< δf < 1.8 / <50	±0.45	±0.7
	0.1< δf < 1.8 / >50	±1.3	±1.5
	δf > 1.8 / All	±1.3	±2.0

10.1.6.1.9 8PSK Static level 1

MEASUREMENT	ADJACENT CHANNEL POWER (dBc)		
	Channel B	Channel M	Channel T

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	925.2 MHz		947.4 MHz		959.8 MHz	
Offset (kHz)	-	+	-	+	-	+
100	-8.7	-7.9	-7.9	-8.7	-7.9	-8.8
200	-40.0	-36.7	-37.7	-36.9	-37.3	-37.1
250	-45.2	-41.9	-43.6	-43.4	-43.2	-43.5
400	-65.5	-59.1	-61	-60.6	-59.2	-58.9
600	-78.4	-71.9	-73.5	-73.2	-72.4	-72.1
800	-80.1	-77.2	-78.2	-78.1	-78.7	-78.7
1000	-81.3	-77.9	-79.6	-78.7	-79.6	-79.6
1200	-81.7	-77.7	-80.2	-79.2	-80.1	-80.1
1400	-82.	-80.8	-82.9	-82	-83.4	-83.1
1600	-82.	-78.8	-82.4	-80.3	-82.8	-81.4
1800	-82	-78.9	-82.5	-81	-82	-81.4

Measurement uncertainty (dB)		Equipment	Requirement
	Absolute power Relative power:- Offset (MHz) / Power difference (dB) δf < 0.1 / All 0.1< δf < 1.8 / <50 0.1< δf < 1.8 / >50 δf > 1.8 / All	±0.6 ±0.3 ±0.45 ±1.3 ±1.3	±1.0 ±0.5 ±0.7 ±1.5 ±2.0

10.1.6.1.10 8PSK Static level 2

MEASUREMENT	ADJACENT CHANNEL POWER (dBc)					
	Channel B 925.2 MHz		Channel M 947.4 MHz		Channel T 959.8 MHz	
Offset (kHz)	-	+	-	+	-	+
100	-8.8	-7.8	-7.6	-8.4	-7.8	-8.4
200	-39.6	-39.9	-38.8	-38.6	-38.9	-38.9
250	-44.7	-40.6	-42.4	-42.2	-42.3	-42.5
400	-67.6	-60.3	-64.6	-63.1	-59.8	-59.5
600	-77.4	-71.9	-74.4	-73.7	-73.8	-73.9
800	-79.9	-77.5	-78.5	-78	-79.3	-79.9
1000	-80.6	-77	-78.9	-78.3	-79.6	-78.9
1200	-80.8	-76.3	-79.4	-77.8	-80.1	-79.4
1400	80.9	-80.0	-81.2	-80.4	-81.9	-81.5
1600	-80.9	-77.6	-80.7	-79.1	-81.4	-80
1800	-81	-78.3	-80.7	-79.5	-81.2	-80.5

Measurement uncertainty (dB)		Equipment	Requirement
	Absolute power Relative power:- Offset (MHz) / Power difference (dB) δf < 0.1 / All 0.1< δf < 1.8 / <50 >50	±0.6 ±0.3 ±0.45 ±1.3	±1.0 ±0.5 ±0.7 ±1.5

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	0.1< δf < 1.8 δf > 1.8	All	±1.3	±2.0

10.1.6.1.11 8PSK Static level 3

MEASUREMENT		ADJACENT CHANNEL POWER (dBc)					
		Channel B 925.2 MHz		Channel M 947.4 MHz		Channel T 959.8 MHz	
Offset (kHz)		-	+	-	+	-	+
100		-8.7	-7.7	-7.9	-8.8	-7.8	-8.6
200		-40.0	-37.6	-38.9	-39.1	-38.9	-39.2
250		-43.6	-40.7	-41.2	-41.6	-41.6	-42.3
400		-67.9	-60.8	-64.5	-63.5	-59.7	-59.9
600		-76.7	-73.4	-74.2	-74.5	-75.5	-75.9
800		-79.3	-76.7	-77.7	-77.6	-79.4	-79.4
1000		-79.6	-76.5	-78	-77.2	-78.4	-79.1
1200		-79.7	-78.5	-77.8	-77.4	-79.6	-81.6
1400		-79.9	-77.1	-80.1	-79.5	-81.9	-79.6
1600		-80.2	-77.2	-79.5	-78.1	-80.8	-80.6
1800		-80	-77.4	-79.8	-78.4	-81.5	-80.6
Measurement uncertainty (dB)				Equipment		Requirement	
	Absolute power Relative power:- Offset (MHz) δf < 0.1 0.1< δf < 1.8 0.1< δf < 1.8 δf > 1.8		Power difference (dB) All <50 >50 All	±0.6 ±0.3 ±0.45 ±1.3 ±1.3		±1.0 ±0.5 ±0.7 ±1.5 ±2.0	

10.1.6.1.12 8PSK Static level 4

MEASUREMENT	ADJACENT CHANNEL POWER (dBc)					
	Channel B 925.2 MHz		Channel M 947.4 MHz		Channel T 959.8 MHz	
Offset (kHz)	-	+	-	+	-	+
100	-8.6	-8	-8.1	-8.7	-7.5	-8.4
200	-39.9	-37.6	-38.9	-40.0	-39.0	-38.9
250	-43.8	-40.9	-41.2	-41.6	-41.6	-42
400	-68.8	-61.7	-64.6	-63.9	-60.3	-60.9
600	-77.2	-75.4	-75.7	-75.8	-76.4	-76.1
800	-78.0	-76.4	-77.1	-76.6	-78.8	-78.8
1000	-78.3	-76.0	-77.4	-76.8	-77.3	-77.2
1200	-78.7	-75.2	-77.5	-76.5	-78.6	-80.6
1400	-78.6	-77.8	-79.3	-78	-81.1	-78.7
1600	-78.7	-76.5	-78.7	-77.2	-80.2	-78.8
1800	-78.6	-76.8	-78.7	-77.6	-80.7	-80.2

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Measurement uncertainty (dB)		Equipment	Requirement
	Absolute power Relative power:- Offset (MHz) / Power difference (dB) δf < 0.1 / All 0.1< δf < 1.8 / <50 0.1< δf < 1.8 / >50 δf > 1.8 / All	 ±0.3 ±0.45 ±1.3 ±1.3	±1.0 ±0.5 ±0.7 ±1.5 ±2.0

10.1.6.1.13 8PSK Static level 5

MEASUREMENT	ADJACENT CHANNEL POWER (dBc)					
	Channel B 925.2 MHz		Channel M 947.4 MHz		Channel T 959.8 MHz	
Offset (kHz)	-	+	-	+	-	+
100	-8.9	-8	-8.2	-8.6	-7.7	-8.3
200	-39.9	-38	-38.9	-39.8	-38.9	-39.2
250	-43.2	-40	-40.6	-41.8	-41.7	-42.2
400	-69.4	-63.1	-65.9	-64.7	-60.8	-62.0
600	-76.5	-75.4	-75	-75.2	-76.6	-76.7
800	-76.7	-75.6	-75.8	-75.8	-77.2	-77.0
1000	-76.9	-75.3	-76.2	-76	-76.6	-76.6
1200	-77.2	-76.1	-76.2	-75.4	-77.7	-77.4
1400	-77.2	-75.6	-77.4	-77.2	-79.9	-79.9
1600	-77.1	-76.2	-77.3	-75.9	-79.7	-78.3
1800	-77.5	-76.2	-77.6	-76.4	-79.5	-78.6

Measurement uncertainty (dB)		Equipment	Requirement
	Absolute power Relative power:- Offset (MHz) / Power difference (dB) δf < 0.1 / All 0.1< δf < 1.8 / <50 0.1< δf < 1.8 / >50 δf > 1.8 / All	±0.6 ±0.3 ±0.45 ±1.3 ±1.3	±1.0 ±0.5 ±0.7 ±1.5 ±2.0

10.1.6.1.14 8PSK Static level 6

MEASUREMENT	ADJACENT CHANNEL POWER (dBc)					
	Channel B 925.2 MHz		Channel M 947.4MHz		Channel T 959.8 MHz	
Offset (kHz)	-	+	-	+	-	+
100	-8.8	-7.8	-8.4	-8.5	-8.1	-8.6

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200	-40.0	-37.9	-38.9	-39.4	-38.9	-39.5
250	-42.4	-40.1	-41.1	-42.1	-41.4	-42.7
400	-70.7	-73.9	-66.7	-66	-61.7	-63.8
600	-75	-74.7	-74.4	-74.3	-76.8	-76.7
800	-75.3	-74.5	-74.4	-74.7	-77.3	-77.5
1000	-75.3	-74.3	-75	-74.5	-76.7	-76.8
1200	-75.6	-74.9	-75	-74.5	-77.8	-77.2
1400	-75.5	-74.4	-75.7	-75.4	-80.2	-79.6
1600	-75.5	-74.5	-75.8	-74.7	-79.6	-78.5
1800	-75.6	-74.6	-76.2	-74.8	-79.5	-79.2

Measurement uncertainty (dB)		Equipment	Requirement
	Absolute power Relative power:- Offset (MHz) / Power difference (dB)	±0.6	±1.0
	$\delta f < 0.1$ / All	±0.3	±0.5
	$0.1 < \delta f < 1.8$ / <50	±0.45	±0.7
	$0.1 < \delta f < 1.8$ / >50	±1.3	±1.5
	$\delta f > 1.8$ / All	±1.3	±2.0

10.1.6.2 Essential conformance requirements clause 6.5.3.1

Normal BTS								
Transmit Band Carrier Offset (kHz)	100	200	250	400	600 to <1200	1200 to <1800	1800 to < 6000	>6000
Limit (dBc)**	< +0.5	< -30	< -33	< -60*	< -70	< -73	< -75	< -80
	For equipment supporting 8-PSK, the requirement at 8-PSK modulation is -56 dB.							

Remarks
** For a GSM900 BTS, if the limit is below -65dBm, a value of -65dBm shall be used instead.

10.1.6.3 Result
The equipments **passed** the requirement of this clause.

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10.1.7 Switching transient spectrum clause 6.5.2

Maximum transmitting power: 44.7 dBm(GMSK) Maximum transmitting power: 43dBm(8PSK)	Code A :RRU 3004
Measurement carried out at BSS output (antenna connector)	Date of testing: 12.09 2007-12.10 2007

SFH Enabled and disabled	All timeslots active at full power
Ambient temperature 25-27 °C	Relative humidity 55-65 %

10.1.7.1 GMSK

MEASUREMENT		ADJACENT CHANNEL POWER (dBc)					
		Channel B 925.2 MHz		Channel M 947.4 MHz		Channel T 959.8 MHz	
Timeslot Power Levels	Offset (kHz)	-	+	-	+	-	+
0 (maximum static power level)	400 600 1200 1800	-75.6 -79.7 -79.7 -79.7	-67.9 -79.7 -79.7 -79.7	-69.9 -84 -84.1 -84.1	-70.1 -83.6 -84.1 -84.1	-69.5 -83.4 -83.4 -83.4	-69.1 -83.4 -83.4 -83.4
6 (minimum static power level)	400 600 1200 1800	-71.0 -71.0 -71.0 -71.0	-71.0 -71.0 -71.0 -71.0	-69.6 -76.1 -77.3 -76.7	-69 -74.7 -73.4 -77	-70.5 -77 -77 -77	-70.5 -77 -77 -77
Measurement uncertainty (dB)		Equipment			Requirement		
	Absolute power: Relative power: - Power difference (dB) <50 >50	< 0.6 dB < 0.45 dB < 1.2 dB			±1.5 ±0.7 ±1.5		

10.1.7.2 8PSK

MEASUREMENT		ADJACENT CHANNEL POWER (dBc)					
		Channel B 925.2 MHz		Channel M 947.4 MHz		Channel T 959.8 MHz	
Timeslot Power Levels	Offset (kHz)	-	+	-	+	-	+
0 (maximum static power level)	400 600 1200 1800	-60.9 -78 -78 -78	-53.5 -67.1 -78 -78	-55.5 -64.9 -78.7 -80.6	-54.6 -65.3 -79.9 -81.2	-55.1 -66.6 -80.9 -80.9	-55.1 -67.6 -80.9 -80.9
6 (minimum static power level)	400 600 1200 1800	-71.5 -71.5 -71.5 -71.5	-63.2 -71.5- 71.5- 71.5	-60.9 -73.8 -75.8 -76.3	-62.8 -74 -73.3 -73.7	-67.6 -77 -77 -77	-66.8 -77 -77 -77

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Measurement uncertainty (dB)		Equipment	Requirement
	Absolute power:	< 0.6 dB	±1.5
	Relative power: - Power difference (dB)		
	<50	< 0.45 dB	±0.7
	>50	< 1.2 dB	±1.5

10.1.7.3 Essential conformance requirements clause 6.5.2.3

GMSK				
Carrier Offset (kHz)	400	600	1200	1800
Limit	< -57dBc or < -36dBm	< -67dBc or < -36dBm	< -74dBc or < -36dBm	< -74dBc or < -36dBm

8PSK				
Carrier Offset (kHz)	400	600	1200	1800
Limit	< -52dBc or < -36dBm	< -62dBc or < -36dBm	< -74dBc or < -36dBm	< -74dBc or < -36dBm

10.1.7.4 Result

The equipments **passed** the requirement of this clause.

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10.1.8 Conducted Spurious Emissions from The Transmitter Antenna Connector Clause 6.6 - Inside the BTS transmit band clause 6.6.1 GSM Band

10.1.8.1 Inside the BTS transmit band clause 6.6.1 GSM Band

Declared maximum output power : 44.7 dBm GMSK	Code A:RRU3004
Measurement carried out at antenna connector	Date of testing: 12.21 2006-12.25 2007

SFH Disabled	All timeslots active
Ambient temperature 25-27 °C	Relative humidity 55-65 %

Power level at which the measurement was carried out 0 (maximum):

10.1.8.2 Channel B

FREQUENCY (MHz)	SPURIOUS EMISSION LEVEL (dBm) Highest measured value	
	Channel B 925.2 MHz	
927-931.2	-55.13	
931.2-960	-49.16	
	Equipment	Requirement
Measurement uncertainty (dB)	< 1.2 dB	±1.5

10.1.8.3 Channel M

FREQUENCY (MHz)	SPURIOUS EMISSION LEVEL (dBm) Highest measured value	
	Channel M 947.4MHz	
921-941.4	-48.50	
941.4-945.6.	-56.00	
949.2-953.4	-55.09	
953.4-960	-51.26	
	Equipment	Requirement
Measurement uncertainty (dB)	< 1.2 dB	±1.5

10.1.8.4 Channel T

FREQUENCY (MHz)	SPURIOUS EMISSION LEVEL (dBm) Highest measured value	
	Channel T 959.8 MHz	
921 – 953.8	-47.88	
953.8 – 958	-53.56	
	Equipment	Requirement

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Measurement uncertainty (dB)	< 1.2 dB	±1.5

10.1.8.5 Essential conformance requirements clause 6.6.1.3

Limit	< -36dBm

10.1.8.6 Result

The equipments **passed** the requirement of this clause.

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10.1.9 Conducted Spurious Emissions from The Transmitter Antenna Connector Clause 6.6 - Outside the GSM 900 transmit bands clause 6.6.2

Frequency range 100 KHz to 12.75 GHz

Declared maximum output power : 44.7 dBm GMSK	Code A: RRU 3004
Measurement carried out at antenna connector	Date of testing:12.21 2007-12.25 2007

SFH Disabled	All timeslots active
Ambient temperature 25-27 °C	Relative humidity 55-65 %

10.1.9.1 Test result

FREQUENCY (MHz)	SPURIOUS EMISSION LEVEL (dBm) Highest measured value Channel M 947.4MHz
0.1 – 50.0	-38.83
50.0 – 500.0	-63.37
500.0 – 895.0	-47.83
895.0 – 905.0	-53.70
905.0 – 915.0	-56.97
915.0 – 920.0	-60.55
920.0 – 923.0	-54.98
962.0 – 965.0	-57.21
965.0 – 970.0	-55.75
970.0 – 980.0	-60.76
980.0 –990.0	-58.51
990 – 1000	-54.81
1000-8000	-51.24
10000-12750	n.a*

Measurement uncertainty (dB)		Equipment	Requirement
	f < 2 GHz 2 GHz < f < 4 GHz > 4 GHz	< 1.4 dB < 1.95 dB < 2.5 dB	±1.5 dB ±2.0 dB ±4.0 dB

*Note:Due to the max.bandwidth of the test equipment FSQ8 is to 8GHz,so the final test bandwith is to 8GHz.

10.1.9.2 Essential conformance requirements clause 6.6.3.2

Limit	<1GHz >1GHz	< -36 dBm < -30 dBm

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10.1.9.3 Result

The equipments **passed** the requirement of this clause.

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10.1.10 Conducted Spurious Emissions from The Transmitter Antenna Connector Clause 6.6 - Outside the BTS transmit band clause 6.6.2 index c,d

Index c; 1805 MHz to 1880 MHz (for GSM 900) or 921 MHz to 960 MHz (for DCS 1800)
Index d; 1710 MHz to 1785 MHz (for GSM 900) or 876 MHz to 915 MHz (for DCS 1800)

Declared maximum output power 44.7 dBm (GMSK)	Code A:RRU 3004
Measurement carried out at antenna connector	Date of testing: 12.21 2007-12.25 2007

SFH Disabled	All timeslots active
Ambient temperature 25-27 °C	Relative humidity 55-65 %

10.1.10.1 Test result

FREQUENCY (MHz)		SPURIOUS EMISSION LEVEL (dBm)	
1805 – 1880		-63.41 (B)	
1710 – 1785		-113.35(B)	
1805 – 1880		-64.48 (M)	
1710 – 1785		-113.88(M)	
1805 – 1880		-64.81(T)	
1710 – 1785		-113.43 (T)	
Measurement uncertainty (dB)		Equipment	Requirement
	f < 2 GHz 2 GHz < f < 4 GHz > 4 GHz	< 1.4 dB < 1.95 dB < 2.5 dB	±1.5 dB ±2.0 dB ±4.0 dB

10.1.10.2 Essential conformance requirements clause 6.6.2.3

Tx Mode	EGSM 900
(1805 – 1880)limit	-47 dBm
(1710-1785) limit	-98dBm

10.1.10.3 Result

The equipments **passed** the requirement of this clause.

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10.1.11 Intermodulation Attenuation Clause 6.7

INTERMODULATION PRODUCT
FALLING IN THE TRANSMIT BAND (9250 to 960.0 MHz) (For EGSM 900)

Declared maximum output power 44.7 dBm	Code A: RRU3004
Measurement carried out at antenna connector	Date of testing: 12.21 2007-12.25 2007

SFH Disabled	All time slots active
Ambient temperature 25-27 °C	Relative humidity 55-65 %

10.1.11.1 Intermodulation product frequency offsets greater than 6 MHz

INTERFERING SIGNAL		Intermodulation Product (dBm)					
		Channel 975 925.2 MHz		Channel 62 947.4 MHz		Channel 124 959.8 MHz	
		+	-	+	-	+	-
(3rd order) -3.2 MHz offset		n.a	n.a	n.a	-40.68	n.a	-42.35
(3rd order) -6.2 MHz offset		n.a	n.a	-42.74	-41.53	n.a	-40.90
(3rd order) +6.2 MHz offset		-41.17	n.a	-43.20	-42.51	n.a	n.a
(3rd order) +3.2 MHz offset		-48.75	n.a	-42.30	n.a	n.a	n.a
(5th order) -3.2 MHz offset		n.a	n.a	-40.80	-41.66	n.a	-41.08
(5th order) -6.2 MHz offset		n.a	n.a	-41.99	-41.07	n.a	-39.94
(5th order) +6.2 MHz offset		-42.11	n.a	-45.90	-41.49	n.a	n.a
(5th order)+3.2 MHz offset		-41.29	n.a	-42.13	-40.57	n.a	n.a
Measurement uncertainty (dB)		Equipment			Requirement		
	Absolute level, Relative level	< 1.35 dB < 1.76 dB			±1.5 ±2.0		

The figures in parentheses ( ) indicate the offset of the intermodulation product from the channel frequency. They are included for information only and will not appear in the final test report.

10.1.11.2 Intermodulation product frequency offsets between 1.8 and 6 MHz

INTERFERING SIGNAL	Intermodulation Product (dBm)					
	Channel 975 925.2 MHz		Channel 62 947.4 MHz		Channel 124 959.8 MHz	
	+	-	+	-	+	-
(3rd order) -3.2 MHz offset	n.a	n.a	-49.08	n.a	n.a	n.a
(3rd order) -2.0 MHz offset	n.a	n.a	-49.96	-53.63	n.a	-43.95
(3rd order) +2.0 MHz offset	-54.11	n.a	-54.33	-54.85	n.a	n.a
(3rd order) +3.2 MHz offset	n.a	n.a	n.a	-54.54	n.a	n.a
(5th order) -3.2 MHz offset	n.a	n.a	n.a	n.a	n.a	n.a

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(5th order) -2.0 MHz offset		n.a	n.a	-50.44	-48.81	n.a	-49.92
(5th order) -0.8 MHz offset		n.a	n.a	n.a	-53.30	n.a	-54.17
(5th order) +0.8 MHz offset		-52.79	n.a	-52.11	n.a	n.a	n.a
(5th order) +2.0 MHz offset		-52.84	n.a	-42.26	-53.65	n.a	n.a
(5th order) +3.2 MHz offset		n.a	n.a	n.a	n.a	n.a	n.a
Measurement uncertainty (dB)		Equipment			Requirement		
	Absolute level Relative level	< 1.35 dB < 1.76 dB			±1.5 ±2.0		

10.1.11.3 Intermodulation product frequency offsets less than 1.8 MHz

INTERFERING SIGNAL		Intermodulation Product (dBm)					
		Channel 975 925.2 MHz		Channel 62 947.4 MHz		Channel 124 959.8 MHz	
		+	-	+	-	+	-
(3rd order) -0.8 MHz offset		n.a	n.a	-53.51	-52.52	n.a	-52.54
(3rd order) +0.8 MHz offset		-50.06	n.a	-52.41	-52.65	n.a	n.a
(5th order) -0.8 MHz offset		n.a	n.a	-42.17	n.a	n.a	n.a
(5th order) +0.8 MHz offset		n.a	n.a	n.a	-41.62	n.a	n.a
Measurement uncertainty (dB)		Equipment			Requirement		
	Absolute level Relative level	< 1.35 dB < 1.76 dB			±1.5 ±2.0		

The figures in parentheses ( ) indicate the offset of the intermodulation product from the channel frequency. They are included for information only and will not appear in the final test report.

10.1.11.4 Essential conformance requirements clause 6.7.3

NORMAL BTS								
Transmit Band Carrier Offset (kHz)	100	200	250	400	600 to <1200	1200 to <1800	1800 to < 6000	>6000
Limit (dBc)**	< +0.5	< -30	< -33	< -60	< -70	< -73	< -75	< -70dBc or < -36dBm

Remarks

* These values are dependent on the transmitter power level.
** For a GSM900 BTS, if the limit is below -65dBm, a value of -65dBm shall be used instead.

10.1.11.5 Result

The equipments **passed** the requirement of this clause.

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10.1.12 Intra Base Station System Intermodulation Attenuation Clause 6.8

INTERMODULATION PRODUCT
FALLING IN THE TRANSMIT BAND (925.0 to 960.0 MHz) (For EGSM 900)

Declared maximum output power : 44.7dBm GMSK *	Code A: RRU3004
Measurement carried out at antenna connector	Date of testing: 12.21 2007-12.25 2007

SFH Disabled	All time slots active
Ambient temperature 25-27 °C	Relative humidity 55-65 %

10.1.12.1 Intermodulation product frequency offsets greater than 6 MHz

INTERFERING SIGNAL	Intermodulation Product (dBm)					
	Channel 975 925.2 MHz		Channel 62 947.4 MHz		Channel 124 959.8 MHz	
	+	-	+	-	+	-
(3rd order) -3.2 MHz offset	n.a	n.a	n.a	-40.03	n.a	-44.77
(3rd order) -6.2 MHz offset	n.a	n.a	-41.93	-41.16	n.a	-42.90
(3rd order) +6.2 MHz offset	-41.06	n.a	-42.70	-42.09	n.a	n.a
(3rd order) +3.2 MHz offset	-41.06	n.a	-40.36	n.a	n.a	n.a
(5th order) -3.2 MHz offset	n.a	n.a	-41.63	-41.06	n.a	-41.87
(5th order) -6.2 MHz offset	n.a	n.a	-42.85	-42.01	n.a	-40.65
(5th order) +6.2 MHz offset	-41.51	n.a	-45.87	-43.02	n.a	n.a
(5th order)+3.2 MHz offset	-41.04	n.a	-42.19	-41.06	n.a	n.a

Measurement uncertainty (dB)		Equipment	Requirement
	Absolute level, Relative level	< 1.35 dB < 1.76 dB	±1.5 ±2.0

The figures in parentheses ( ) indicate the offset of the intermodulation product from the channel frequency. They are included for information only and will not appear in the final test report.

10.1.12.2 Intermodulation product frequency offsets between 1.8 and 6 MHz

INTERFERING SIGNAL	Intermodulation Product (dBm)					
	Channel 975 925.2 MHz		Channel 62 947.4 MHz		Channel 124 959.8 MHz	
	+	-	+	-	+	-
(3rd order) -3.2 MHz offset	n.a	n.a	-49.97	n.a	n.a	n.a
(3rd order) -2.0 MHz offset	n.a	n.a	-50.14	-53.36	n.a	-42.77
(3rd order) +2.0 MHz offset	-53.24	n.a	-49.93	-53.20	n.a	n.a
(3rd order) +3.2 MHz offset	n.a	n.a	n.a	-52.84	n.a	n.a
(5th order) -3.2 MHz offset	n.a	n.a	n.a	n.a	n.a	n.a

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(5th order) -2.0 MHz offset		n.a	n.a	-50.17	-48.38	n.a	-47.46
(5th order) -0.8 MHz offset		n.a	n.a	n.a	-53.35	n.a	-53.90
(5th order) +0.8 MHz offset		-53.13	n.a	-52.01	n.a	n.a	n.a
(5th order) +2.0 MHz offset		-53.00	n.a	-49.96	-53.55	n.a	n.a
(5th order) +3.2 MHz offset		n.a	n.a	n.a	n.a	n.a	n.a
Measurement uncertainty (dB)		Equipment			Requirement		
	Absolute level Relative level	< 1.35 dB < 1.76 dB			±1.5 ±2.0		

10.1.12.3 Intermodulation product frequency offsets less than 1.8 MHz

INTERFERING SIGNAL		Intermodulation Product (dBm)					
		Channel 975 925.2 MHz		Channel 62 947.4 MHz		Channel 124 959.8 MHz	
		+	-	+	-	+	-
(3rd order) -0.8 MHz offset		n.a	n.a	-52.49	-52.47	n.a	-52.59
(3rd order) +0.8 MHz offset		-52.40	n.a	-51.84	-52.46	n.a	n.a
(5th order) -0.8 MHz offset		n.a	n.a	-50.11	n.a	n.a	n.a
(5th order) +0.8 MHz offset		n.a	n.a	n.a	-41.86	n.a	n.a
Measurement uncertainty (dB)		Equipment			Requirement		
	Absolute level Relative level	< 1.35 dB < 1.76 dB			±1.5 ±2.0		

The figures in parentheses ( ) indicate the offset of the intermodulation product from the channel frequency. They are included for information only and will not appear in the final test report.

10.1.12.4 Essential conformance requirements clause 6.7.3

NORMAL BTS (in the operating TX band)								
Transmit Band Carrier Offset (kHz)	100	200	250	400	600 to <1200	1200 to <1800	1800 to < 6000	>6000
Limit (dBc)**	< +0.5	< -30	< -33	< -60	< -70	< -73	< -75	< -70dBc or < -36dBm

Remarks
** For a GSM900 BTS, if the limit is below -65dBm, a value of -65dBm shall be used instead.

10.1.12.5 Result

The equipments **passed** the requirement of this clause.

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10.2 Receiver Measurements

10.2.1 Static Reference Sensitivity Level Clause 7.3

Maximum transmitting power: 44.7 dBm(GMSK) Maximum transmitting power: 43 dBm(8PSK)	Code A :RRU 3004
Measurement performed on antenna connector	All timeslots active
	Date of testing: 12.11 2007

SFH Disabled	All timeslots active, measured on slot 2
Ambient temperature 25-27 °C	Relative humidity 55-65 %

10.2.1.1 Test Result

TEST CONDITIONS	CHANNEL TYPE	RESIDUAL BIT ERROR/FRAME ERASURE RATIO (%)	
		Channel (M) 902.4MHz	
Non Hopping	TCH/FS FER** TCH/FS Class Ib** TCH/FS Class II	0.0 0.0 0.008	
Measurement uncertainty (dB)		Equipment	Requirement
		± 0.6 dB	±1.0

TEST CONDITIONS	CHANNEL TYPE	RESIDUAL BIT ERROR/FRAME ERASURE RATIO (%)	
		Channel (M) 902.4 MHz	
Non Hopping	PDTCH/DBLER	0.3	
Measurement uncertainty (dB)		Equipment	Requirement
		± 0.6 dB	±1.0

10.2.1.2 Essential conformance requirements clause 7.3.3

Channel Type	Error Measure	
	FER(%)	RBER(%)
TCH/FS TCH/FS-Class Ib TCH/FS-Class II	< 0.1α (0.10 to 0.16) - -	- < 0.4/α (0.25 to 0.40) < 2.0

Where 1.0< α <1.6 and the same for both occurrences. ** Indicate which value(s) of α were used to demonstrate conformance.

Channel Type	Error Measure
	DBLER(%)
PDTCH(MCS1~9)	10

10.2.1.3 Result

The equipments **passed** the requirement of this clause.

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10.2.2 Multipath Reference Sensitivity Level Clause 7.4

Maximum transmitting power: 44.7 dBm(GMSK) Maximum transmitting power: 43dBm(8PSK)	Code A :RRU 3004
Measurement performed on antenna connector	Both TRX on transmitting full power
	Date of testing: 12.12 2007-12.13 2007

SFH Disabled	All timeslots active, measured on slot 2
Ambient temperature 25-27 °C	Relative humidity 55-65 %

10.2.2.1 Multipath Reference Sensitivity Level – 900M

MULTIPATH TEST CONDITION	CHANNEL TYPE	RESIDUAL BIT ERROR/FRAME ERASURE RATIO (%)		
		Channel 880.2 MHz	Channel 902.4 MHz	Channel 914.8 MHz
TU50/No SFH	TCH/FS FER** TCH/FS Class Ib** TCH/FS Class II	2.45 0.03 3.25	2.01 0.09 3.57	3.98 0.12 3.24
RA130 or RA250/No SFH	TCH/FS FER** TCH/FS Class Ib** TCH/FS Class II	0.46 0.02 2.12	0.50 0.01 2.25	0.64 0.03 2.65
HT100/No SFH	TCH/FS FER** TCH/FS Class Ib** TCH/FS Class II	2.38 0.21 3.42	3.56 0.24 2.43	3.42 0.18 2.41
TU50/No SFH	PDTCH/DBLER	3.5	6.1	6.5
RA130 or RA250/No SFH	PDTCH/DBLER	5.2	6.4	4.1
HT100/No SFH	PDTCH/DBLER	4.3	5.7	3.9
Measurement uncertainty (dB)		Equipment	Requirement	
		± 0.8 dB	±1.5	

10.2.2.2 Essential conformance requirements clause 7.4.3

Channel Type	Error Measure	Error Ratio for the specified propagation conditions (%)		
		TU50 (No SFH)	RA250 (No SFH)	HT100 (No SFH)
TCH/FS	FER	< 6.0α (6.0 to 9.6)	< 2.0α (2.0 to 3.2)	< 7.0α (7.0 to 11.2)
TCH/FS-Class Ib	RBER	< 0.4/α (0.25 to 0.40)	< 0.2/α (0.125 to 0.20)	< 0.5/α (0.3125 to 0.50)
TCH/FS-Class II	RBER	< 8.0	< 7.0	< 9.0
PDTCHMCS9	DBLER	<10%	<10%	<10%

10.2.2.3 Result

The equipments **passed** the requirement of this clause.

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10.2.3 Reference Interference Level Clause 7.5

Maximum transmitting power: 44.7dBm(GMSK) Maximum transmitting power: 43dBm(8PSK)	Code A :RRU 3004
Measurement performed on antenna connector	Both TRX on transmitting full power
	Date of testing: 12.14 2007-12.15 2007

SFH Disabled/Enabled	All timeslots active, measured on slot 2
Ambient temperature 25-27 °C	Relative humidity 55-65 %

10.2.3.1 Reference Interference Level -900M

MULTIPATH TEST CONDITION TU3	CHANNEL TYPE	RESIDUAL BIT ERROR/FRAME ERASURE RATIO (%)		
Offset (kHz)		Channel 880.2 MHz	Channel 902.4 MHz	Channel 914.8 MHz
0 (SFH)	TCH/FS FER** TCH/FS Class Ib** TCH/FS Class II	n.a	n.a	n.a
0 (No SFH)	TCH/FS FER** TCH/FS Class Ib** TCH/FS Class II	7.35 0.367 2.403	8.12 0.34 2.054	6.41 0.23 2.001
+200 (No SFH)	TCH/FS FER** TCH/FS Class Ib** TCH/FS Class II	1.8 0.09 3.83	1.6 0.07 3.12	1.5 0.06 3.5
-200 (No SFH)	TCH/FS FER** TCH/FS Class Ib** TCH/FS Class II	1.7 0.12 4.1	2.0 0.17 3.78	2.7 0.16 4.26
+400 (No SFH)	TCH/FS FER** TCH/FS Class Ib** TCH/FS Class II	0 0 0	0 0 0	0 0 0
-400 (No SFH)	TCH/FS FER** TCH/FS Class Ib** TCH/FS Class II	0 0 0	0 0 0	0. 0 0
Measurement uncertainty (dB)		Equipment	Requirement	
		± 0.8 dB	+5, -0	

MULTIPATH TEST CONDITION TU50	CHANNEL TYPE	RESIDUAL BIT ERROR/FRAME ERASURE RATIO (%)		
Offset (kHz)		Channel 975 880.2 MHz	Channel 62 902.4 MHz	Channel 124 914.8 MHz
0 (SFH)	PDTCH/MCS9 DBLER	n.a	n.a	n.a
0 (No SFH)	PDTCH/MCS9 DBLER	5.8	6.4	5.7
+200 (No SFH)	PDTCH/MCS9 DBLER	6.8	7.7	6.9
-200 (No SFH)	PDTCH/MCS9	7.6	7.4	7.5

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	DBLER			
+400 (No SFH)	PDTCH/MCS9 DBLER	7.3	6.9	8.5
-400 (No SFH)	PDTCH/MCS9 DBLER	7.4	7	8.3
Measurement uncertainty (dB)		Equipment	Requirement	
		± 0.8 dB	+5, -0	

10.2.3.2 Essential conformance requirements

10.2.3.2.1 Essential conformance requirements clause 7.5.3 GSM 900

Channel Type	Error Measure	Error ratio for the specified propagation conditions (%)		
		TU3 (No SFH)	TU50 (No SFH)	
		Co-channel	200 kHz offset	400 kHz offset
TCH/FS TCH/FS-Class Ib TCH/FS-Class II	FER RBER RBER	<21α (21 to 33) <2/α (1.25 to 2) < 4.0	< 6.0α (6.0 to 9.6) < 0.4/α (0.25 to 0.40) < 8.0	< 10.2α (10.2 to 16.32) < 0.72/α (0.45 to 0.72) < 8.8
PDTCH/MCS9	DBLER	<10%	10%	10%

Where 1.0<α<1.6 and the same for both occurrences in each channel condition. It may be different for different propagation conditions.
** Indicate which value(s) of α were used to demonstrate conformance.

10.2.3.3 Result

The equipments **passed** the requirement of this clause.

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10.2.4 Blocking Characteristics Clause 7.6

Maximum transmitting power: 44.7 dBm(GMSK) Maximum transmitting power: 43 dBm(8PSK)	Code A :RRU 3004
Measurement performed on antenna connector	Both TRX on transmitting full power
	Date of testing: 12.16 2006-12.17 2007

SFH Disabled	
Ambient temperature 25-27 °C	Relative humidity 55-65 %

10.2.4.1 Blocking characteristics-900M

Blocking Points (MHz)	RESIDUAL BIT ERROR RATIO - TCH/FS Class II bits (%)		
		Channel M 902.4 MHz	
		Blocking	
887.8		2.4	
889.4		2.1	
891.2		2.5	
Spurious responses			
All other frequency point		<2	
Measurement uncertainty (dB)		Equipment	Requirement
	Wanted signal Interfering signal f < 2 GHz 2 GHz < f < 4 GHz f > 4 GHz	±0.8 ±0.7 ±1.2 ±2.3	±1.0 ±0.7 ±1.5 ±3.0

Blocking Points (MHz)	RESIDUAL BIT ERROR RATIO – PDTCH/MCS5 BLER (%)		
		Channel M 902.4MHz	
		Blocking	
887.8		7.6	
889.4		5.6	
891.2		6.3	
Spurious responses			
All other frequency point		<2	
Measurement uncertainty (dB)		Equipment	Requirement
	Wanted signal Interfering signal f < 2 GHz 2 GHz < f < 4 GHz	±0.8 ±0.7 ±1.2	±1.0 ±0.7 ±1.5

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	f > 4 GHz	±2.3	±3.0

10.2.4.2 Essential conformance requirements

10.2.4.2.1 Essential conformance requirements Blocking GSM 900 clause 7.6.3

Limit	< 2.0% (RBER)	
Allowable exceptions TCH/FS	< 45 MHz offset < 6 of which no more than 3 are consecutive	> 45 MHz offset < 24 of which no more than 3 are consecutive

Limit	< 10% (BLER)	
Allowable exceptions PDTCH/MCS5	< 45 MHz offset < 6 of which no more than 3 are consecutive	> 45 MHz offset < 24 of which no more than 3 are consecutive

10.2.4.2.2 Essential conformance requirements Spurious Response clause 7.6.3

Limit	< 2.0% at -43 dBm interfering signal level
Allowable exceptions	None

10.2.4.3 Result

The equipments **passed** the requirement of this clause.

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10.2.5 Intermodulation Characteristics Clause 7.7

Maximum transmitting power: 44.7 dBm(GMSK) Maximum transmitting power: 43dBm(8PSK)	Code A :RRU 3004
Measurement performed on antenna connector	One TRX measured
	Date of testing: 12.17 2007

SFH Disabled	
Ambient temperature 25-27 °C	Relative humidity 55-65 %

10.2.5.1 INTERMODULATION CHARACTERISTICS-900M

FREQUENCY INCREMENTS OF UNWANTED SIGNALS		RESIDUAL BIT ERROR RATIO – TCH/FS Class II bits (%)		
SIG GEN A	SIG GEN B	Channel B 880.2MHz	Channel M 902.4MHz	Channel T 914.8 MHz
f_{chan}-1.6 MHz (-8 channels)	f_{chan}-0.8 MHz (-4 channels)	0	0	0
f_{chan}+1.6 MHz (+8 channels)	f_{chan}+0.8 MHz (+4 channels)	0	0	0
Measurement uncertainty (dB)			Equipment	Requirement
		Wanted signal Interfering signal	±0.8 ±0.7	±1.0 ±0.7

FREQUENCY INCREMENTS OF UNWANTED SIGNALS		RESIDUAL BIT ERROR RATIO – PDTCH/MCS9 DBLER (%)		
SIG GEN A	SIG GEN B	Channel B 880.2MHz	Channel M 902.4 MHz	Channel T 914.8 MHz
f_{chan}-1.6 MHz (-8 channels)	f_{chan}-0.8 MHz (-4 channels)	0	0	0
f_{chan}+1.6 MHz (+8 channels)	f_{chan}+0.8 MHz (+4 channels)	0	0	0
Measurement uncertainty (dB)			Equipment	Requirement
		Wanted signal Interfering signal	±0.8 ±0.7	±1.0 ±0.7

10.2.5.2 Essential conformance requirements clause 7.7.3

Limit TCH/FS	< 2.0% (RBER)
Limit PDTCH	< 10% (DBLER)

10.2.5.3 Result

The equipments **passed** the requirement of this clause.

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10.2.6 AM Suppression Clause 7.8

Maximum transmitting power: 44.7dBm(GMSK)* Maximum transmitting power: 43 dBm(8PSK) *	Code A :RRU 3004
Measurement performed on antenna connector	One TRX measured
	Date of testing: 12.18 2007-12.19 2007

SFH Disabled	
Ambient temperature 25-27 °C	Relative humidity 55-65 %

10.2.6.1 AM SUPPRESSION-900M

INTERFERER FREQUENCY	CHANNEL TYPE	RESIDUAL BIT ERROR/FRAME ERASURE RATIO (%)		
		-	Channel M 902.4MHz	-
909MHz	TCH/FS FER** TCH/FS-Class Ib** TCH/FS-Class II		0 0 0.000	
895.4MHz	PDTCH/MCS9 DBLER		0 0 0.000	
Measurement Uncertainty (dB)			Equipment	Requirement
		Wanted signal Interfering signal	±0.8 ±0.7	±1.0 ±0.7

10.2.6.2 Essential conformance requirements clause 7.8.3

Channel Type	Error Measure	
	FER (%)	RBER (%)
TCH/FS TCH/FS-Class Ib TCH/FS-Class II	< 0.1α (0.1 to 0.16) - -	- < 0.4/α (0.25 to 0.40) < 2.0

Where 1.0<α<1.6 and the same for both occurrences in each channel condition. It may be different for different propagation conditions. ** Indicate which value(s) of α were used to demonstrate conformance.

Channel Type	Error Measure
	DBLER (%)
PDTCH/MCS9	< 10

10.2.6.3 Result

The equipments **passed** the requirement of this clause.

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10.2.7 Spurious Emissions from the Receiver Antenna Connector Clause 7.9

Declared maximum output power 44.7 dBm GMSK Declared maximum output power 43dBm 8PSK	Code A: RRU 3004
Measurement performed on antenna connector	One TRX active at full power all time slots
	Date of testing: 12.20 2007-12.21 2007

SFH Disabled	
Ambient temperature 25-27 °C	Relative humidity 55-65 %

10.2.7.1 Spurious Emission-900M

Note:

According to the requirement of the clause 7.9 (Spurious emissions from the receiver antenna connector) of ETSI TS 101 087, for a BTS equipped with a duplexer or duplexers, the requirements of Spurious emissions from the transmitter antenna connector apply to any antenna connector which is a port for both transmitter(s) and receiver(s) as the RRU3004 has.

Therefore, this test need NOT be performed (on these ports) for RRU3004, see section 9.1.8, 9.1.9 and 9.1.10 of this test report for reference.

10.2.7.2 Essential conformance requirements clause 7.9.3

Frequency range	9 kHz - 1000 MHz	1 - 12.75 GHz
Limit	< -57dBm	< -47dBm

Note: If the receivers operate in non-duplex mode and are diversity, then both parts are to be tested.

10.2.7.3 Result

This test need NOT be performed (on these ports) for RRU3004, see section 9.1.8, 9.1.9 and 9.1.10 of this test report for reference.

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10.3 Appendixes

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11 DCS1800

11.1 Transmitter Measurements

11.1.1 Modulation Accuracy Clause 6.2

Preconditioning: 1 hour

Maximum transmitting power: 43 dBm(GMSK)* Maximum transmitting power: 41.8 dBm(8PSK) *	Code A: RRU 3004
Measurement carried out at output of BSS (Antenna Connector)	Date of testing: 11.15.2007-11.25.2007

SFH Enabled	All time slots on: measured on slot 2
Ambient temperature 25-27 °C	Relative humidity 55-65 %

11.1.1.1 GMSK

TEST CONDITIONS		TRANSMITTER PHASE & Freq. ERROR								
		Channel B 1805.2 MHz			Channel M 1842.6 MHz			Channel T 1879.8 MHz		
		PHASE ERROR (°)		Freq. Error	PHASE ERROR (°)		Freq. Error	PHASE ERROR (°)		Freq Error
		° rms	° peak	Hz	° rms	° peak	Hz	° rms	° peak	Hz
Tnom(27 °C)	V_{nom}(-48 V)	1.3	-4.7	-8	1.4	-4.6	-9	1.3	-4.2	-9
T_{min} (-40 °C)	V_{min}(-36 V)	1.5	-5.7	-7	1.3	4.5	-11	1.7	5.4	-10
	V_{max}(-57 V)	1.4	-5.3	-11	1.3	4.5	-11	1.6	5.3	-9
T_{max} (55 ° C)	V_{min} (-36 V)	1.4	-4.8	-10	1.3	-4.5	-11	1.6	5.6	-10
	V_{max}(-57 V)	1.4	-4.9	-11	1.3	4.7	-14	1.6	5.6	-9
Maximum error		**1.5**	**-5.7**	**-11**	**1.3**	**4.7**	**-11**	**1.7**	**5.6**	**-10**
Measurement uncertainty		Equipment			Requirement					
		CMU300: <1.5° rms <5.0° peak <10Hz			<1.5° rms <5.0° peak <10Hz					

11.1.1.2 8PSK

TEST ARFCN	TEST CONDITIONS		TRANSMITTER ITEM				
			EVM rms (%)	EVM peak (%)	Freq. Error (Hz)	OOS (dB)	95th Percentile (%)
Channel B 1805.2	T_{nom} (27 °C)	V_{nom}(-48 V)	3.7	14.5	-14	-37.8	5.6
	T_{min} (-40 °C)	V_{min}(-36 V)	3.9	17.8	-18	-35.9	5.7
		V_{max}(-57 V)	3.9	16.2	-19	-36.7	5.7

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MHz	T_{max} (55°C)	V_{min} (-36 V)	3.9	16.4	15	-36.6	5.7
		V_{max}(-57 V)	3.7	15.6	13	-36.7	5.6
Channel M 1842. 6 MHz	T_{nom} (27 °C)	V_{nom}(-48 V)	2.2	10.3	-10	-40.2	3.3
	T_{min} (-40 °C)	V_{min}(-36 V)	2.2	9.1	-8	-38.5	3.3
		V_{max}(-57 V)	2.2	9.8	-11	-38.8	3.4
	T_{max} (55°C)	V_{min} (-36 V)	2.2	10.9	-9	-39.1	3.4
		V_{max}(-57 V)	2.2	9.7	9	-40.2	3.4
Channel T 1879.8 MHz	T_{nom} (27 °C)	V_{nom}(-48 V)	2.7	11.6	-9	-39.9	4.1
	T_{min} (-40 °C)	V_{min}(-36 V)	2.5	10.9	-10	-40.7	3.9
		V_{max}(-57 V)	2.5	10.6	-11	-41.2	4.0
	T_{max} (55°C)	V_{min} (-36 V)	2.6	10.6	9	-40.3	4.0
		V_{max}(-57 V)	2.6	10.2	-9	-40.9	4
Maximum error			**3.9**	**17.8**	**-19**	**-35.9**	**5.7**
Measurement uncertainty			Equipment			Requirement	
			CMU300: <5% rms <20Hz			<4% rms <20Hz	

11.1.1.3 Essential conformance requirements Clause 6.3.3

GMSK modulation	
rms phase error (°)	≤ 5.0
peak phase error (°)	≤ 20.0
Frequency error (Hz)	≤ 90Hz

8PSK modulation	
rms evm error (%)	≤ 8
peak evm error (%)	≤ 22
Freq. Error (Hz)	⩽90Hz
OOS (dB)	>35
95th Percentile (%)	⩽11%

11.1.1.4 Result

The equipments **passed** the requirement of this clause.

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11.1.2 Mean Transmitted RF Carrier Power Clause 6.3 - Normal conditions Static Power Control

11.1.2.1 Normal conditions Static Power Control

Pre-conditioning: 1 hour

Declared maximum GMSK output power: 43 dBm Declared maximum 8PSK output power: 41.8 dBm	Code A: RRU 3004
Measurement carried out at the input of the combiner	Date of testing: 11.16.2007-11.17.2007

SFH Enabled	All time slots active
Ambient temperature 25-27 °C	Relative humidity 55-65 %

11.1.2.2 GMSK

TEST CONDITIONS		BTS STATIC POWER SETTING	TRANSMITTER POWER (dBm)		
			Channel B 1805.2 MHz	Channel M 1842.6 MHz	Channel T 1879.8 MHz
T_{nom}(27°C)	V_{nom}(-48V)	0,0 1,0 2,0 3,0 4,0 5,0 6,0	42.98 40.87 39.10 37.02 35.01 32.92 31.07	42.96 40.92 39.02 36.98 35.03 32.98 31.08	42.98 41.02 39.02 36.97 35.04 33.09 31.11
Power range over 2 x N dB steps (dB)			42.98-31.07	42.96-31.08	42.98-31.11
Maximum deviation from 2 dB per step (dB)			***2.11***	***2.05***	***2.05***
Measurement uncertainty (dB)			Equipment		Requirement
	Absolute level Step size		< 0.6 dB < 0.3 dB		±1.0 ±0.7

11.1.2.3 8PSK

TEST CONDITIONS		BTS STATIC POWER SETTING	TRANSMITTER POWER (dBm)		
			Channel B 1805.2 MHz	Channel M 1842.6 MHz	Channel T 1879.8 MHz
T_{nom}(27°C)	V_{nom}(-48V)	0,0 1,0 2,0 3,0 4,0 5,0 6,0	41.81 41.10 39.10 37.04 35.09 32.99 31.12	41.78 41.07 39.02 37.09 34.98 32.85 31.03	41.83 41.24 38.85 37.04 35.22 33.05 30.97
Power range over 2 x N dB steps (dB)			41.81-31.12	41.78-31.03	41.83-30.97
Maximum deviation from 2 dB per step (dB)			***2.1***	***2.13***	***2.39***
Measurement			Equipment		Requirement

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uncertainty (dB)			
	Absolute level Step size	< 0.6 dB < 0.3 dB	±1.0 ±0.7

11.1.2.4 Essential conformance requirements clause 6.3.3

Normal BTS	
Absolute Level (0)	43 dBm ±2.0 dB 41.8 dBm ±2.0 dB
Absolute Level (1-N)	≤ ±3.0 dB
Power Range	2 x N dB ±3.0 dB
Step Size	2.0 dB ± 1.0 dB

11.1.2.5 Result

The equipments **passed** the requirement of this clause.

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11.1.3 Mean Transmitted RF Carrier Power Clause 6.3 - At extreme temperature and voltage Static Power Control

Declared maximum output power: 43dBm GMSK Declared maximum output power: 41.8dBm 8PSK	Code A: RRU 3004
Measurement carried out at the input of the combiner	Date of testing: 11.17.2007-11.30.2007

SFH Enabled	All time slots active
Ambient temperature 25-27 °C	Relative humidity 55-65 %

11.1.3.1 GMSK

TEST CONDITIONS		BTS STATIC POWER SETTING	TRANSMITTER POWER (dBm)		
			Channel B 1805.2 MHz	Channel M 1842.6 MHz	Channel T 1879.8 MHz
T_{min}(-40 °C)	V_{min}(-36 V)	0,0	43.19	43.24	43.23
	V_{max}(-57V)	0,0	43.19	43.22	43.23
T_{max}(+ 55 ° C)	V_{min}(-36 V)	0,0	42.80	42.79	42.78
	V_{max}(-57V)	0,0	42.81	42.84	42.82
Measurement uncertainty (dB)			Equipment		Requirement
			< 0.6 dB < 0.3 dB		±1.0

11.1.3.2 8PSK

TEST CONDITIONS		BTS STATIC POWER SETTING	TRANSMITTER POWER (W/dBm)		
			Channel B 1805.2 MHz	Channel M 1842.6 MHz	Channel T 1879.8 MHz
T_{min}(-40 °C)	V_{min}(-36 V)	0,0	41.92	41.97	41.97
	V_{max}(-57V)	0,0	42.01	41.94	41.95
T_{max}(+ 55 ° C)	V_{min}(-36 V)	0,0	41.64	41.61	41.64
	V_{max}(-57V)	0,0	41.68	41.67	41.75
Measurement uncertainty (dB)			Equipment		Requirement
			< 0.6 dB < 0.3 dB		±1.0

11.1.3.3 Essential conformance requirements clause 6.3.3

Absolute Level (0)	
Normal BTS	GMSK: 43dBm ±2.5 dB 8PSK: 41.8dBm ±2.5 dB

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11.1.3.4 Result

The equipment **passed** the requirement of this clause.

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11.1.4 Mean Transmitted RF Carrier Power Clause 6.3 - Normal Condition Dynamic Power Control

Declared maximum output power: 43 dBm GMSK Declared maximum output power: 41.8 dBm 8PSK	Code A: RRU 3004
Measurement carried out at the input of the combiner	Date of testing: 11.19.2007-11.22.2007

SFH Enabled	Measured Time slot: all active
Ambient temperature 25-27 °C	Relative humidity 55-65 %

11.1.4.1 GMSK

TEST CONDITIONS		BTS Dynamic POWER SETTING	TRANSMITTER POWER (dBm) Channel B 1805.2 MHz	Channel M 1842.6 MHz	Channel T 1879.8 MHz
T_{nom}(27 °C)	V_{nom}(-48 V)	6,1	28.88	29.13	29.08
		6,2	26.91	27.03	27.01
		6,3	25.00	24.98	24.90
		6,4	23.01	23.16	23.06
		6,5	20.92	20.99	21.11
		6,6	18.86	19.04	19.06
		6,7	16.91	17.06	17.06
		6,8	14.96	15.06	15.04
		6,9	13.08	13.07	13.12
		6,10	10.83	11.02	11.04
		6,11	9.05	9.08	9.11
		6,12	7.05	7.04	7.09
		6,13	4.96	4.98	4.89
		6,14	3.10	3.13	3.07
		6,15	1.09	1.09	1.09
Power range over 2 x M dB steps (dB)			31.07-1.09	31.08-1.09	31.11-1.09
Maximum deviation from 2 dB per step (dB)			**2.25**	**2.17**	**2.2**
Measurement uncertainty (dB)			Equipment		Requirement
	absolute level		< 0.6 dB		±1.0
	step size		< 0.3 dB		±0.7

11.1.4.2 8PSK

TEST CONDITIONS		BTS POWER SETTING	TRANSMITTER POWER (dBm) Channel B 1805.2 MHz	Channel M 1842.6 MHz	Channel T 1879.8 MHz
T_{nom}(27 °C)	V_{nom}(-48 V)	6,1	29.07	29.01	28.88
		6,2	26.82	26.93	27.25
		6,3	24.93	25.00	25.04
		6,4	23.02	22.92	22.98
		6,5	20.94	21.09	20.98
		6,6	19.07	18.86	19.08
		6,7	17.00	16.93	16.86

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		6,8 6,9 6,10 6,11 6,12 6,13 6,14 6,15	15.04 12.90 11.12 9.04 7.14 4.89 3.01 1.09	15.08 13.05 11.05 9.10 7.02 5.09 3.18 1.10	15.06 12.94 11.19 9.04 7.12 5.06 2.93 1.00
Power range over 2 x M dB steps (dB)			31.12-1.09	31.03-1.10	30.97-1.00
Maximum deviation from 2 dB per step (dB)			**2.25**	**2.23**	**2.22**
Measurement uncertainty (dB)			Equipment		Requirement
	absolute level step size		< 0.6 dB < 0.3 dB		±1.0 ±0.7

11.1.4.3 Essential conformance requirements clause 6.3.3

Normal BTS	
Absolute Level (0)	GMSK: 43dBm ±3.0 dB 8PSK: 41.8dBm ±3.0 dB
Absolute Level (1-M)	≤ ±3.0 dB
Power Range	2 x M dB ±3.0 dB
Step Size	2.0 dB ± 1.5 dB

11.1.5 Result

The equipments **passed** the requirement of this clause.

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11.1.6 Transmitted RF Carrier Power Versus Time Clause 6.4

Declared maximum output power: 43 dBm GMSK Declared maximum output power: 41.8 dBm 8PSK	Code A: RRU 3004
Measurement carried out at BSS output (antenna connector)	Date of testing: 11.23.2007-11.25.2007

SFH Enabled	Only slot 0 active all other slots idle
Ambient temperature 25-27 °C	Relative humidity 55-65 %

11.1.6.1 GMSK

BTS POWER SETTING	TEST RESULT		
	Channel B 1805.2 MHz	Channel M 1842.6 MHz	Channel T 1879.8 MHz
P_{max} (0,0)	42.98dBm	42.99dBm	42.98dBm
P_{min} (6,0)	31.03dBm	30.87dBm	30.99dBm
Measurement uncertainty (dB)		Equipment	Requirement
	Reference Relative	< 0.6 dB < 0.6 dB	±1.0 ±1.0

11.1.6.2 8PSK

BTS POWER SETTING	TEST RESULT		
	Channel B 1805.2 MHz	Channel M 1842.6 MHz	Channel T 1879.8 MHz
P_{max} (0)	41.75dBm	41.74dBm	41.84dBm
P_{min} (see remarks)	30.97dBm	31.08dBm	30.97dBm
Measurement uncertainty (dB)		Equipment	Requirement
	Reference Relative	< 0.6 dB < 0.6 dB	±1.0 ±1.0

11.1.6.3 Essential conformance requirements clause 6.4.3

Limit	As per power/time profile

Remarks

P_{min} = lowest static power level measured in sub clause 6.3.

11.1.6.4 Result

The equipments **passed** the requirement of this clause.

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11.1.7 Adjacent Channel Power Clause 6.5 - Spectrum due to modulation and wideband noise clause 6.5.1

11.1.7.1 Spectrum due to modulation and wideband noise clause 6.5.1

Declared maximum output power: 43 dBm GMSK Declared maximum output power: 41.8 dBm 8PSK	Code A: RRU 3004
Measurement carried out at BSS output (antenna connector)	Date of testing: 11.24.2007-12.03.2007

SFH Enabled	All timeslots active at full power
Ambient temperature 25-27 °C	Relative humidity 55-65 %

11.1.7.2 GMSK

11.1.7.2.1 GMSK Static level 0

MEASUREMENT		ADJACENT CHANNEL POWER (dBc)					
		Channel B 1805.2 MHz		Channel M 1842.6 MHz		Channel T 1879.8 MHz	
Offset (kHz)		-	+	-	+	-	+
100		-10.1	-8.7	-9.9	-8.9	-9.8	-8.7
200		-37.2	-36.5	-37	-36.7	-36.9	-36.6
250		-42.2	-41.7	-42.2	-41.7	-41.8	-41.7
400		-64.2	-70.5	-64.8	-69.2	-62.5	-69.6
600		-79.9	-80.2	-79.8	-78.7	-80.1	-80.4
800		-80.5	-80.4	-80.6	-80.8	-79.8	-80.0
1000		-80.8	-80.1	-81.5	-80.9	-81.2	-80.4
1200		-80.9	-80.6	-80.6	-80.2	-81.7	-82.4
1400		-81.7	-81.5	-82.6	-83	-82.8	-83.3
1600		-81.5	-82.2	-82.0	-83.5	-81.6	-83.9
1800		-82.9	-82.5	-83.3	-84.3	-83.1	-84.1
Measurement uncertainty (dB)				Equipment		Requirement	
	Absolute power			±0.6		±1.0	
	Relative power:-						
	Offset (MHz)	Power difference (dB)					
	$\delta f \leq 0.1$	All		±0.3		±0.5	
	$0.1 < \delta f \leq 1.8$	<50		±0.45		±0.7	
	$0.1 < \delta f \leq 1.8$	≥50		±1.3		±1.5	
	$\delta f > 1.8$	All		±1.3		±2.0	

11.1.7.2.2 GMSK Static level 1

MEASUREMENT	ADJACENT CHANNEL POWER (dBc)		
	Channel B 1805.2 MHz	Channel M 1842.6 MHz	Channel T 1879.8 MHz

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Offset (kHz)	-	+	-	+	-	+
100	-10.0	-8.1	-9.6	-8.9	-9.7	-7.9
200	-37.4	-36.4	-37.1	-36.8	-37.1	-36.4
250	-42.0	-41.7	-42.1	-41.7	-41.8	-41.7
400	-63.0	-70.1	-64.1	-69.6	-62.4	-69.7
600	-79.4	-79.8	-79.5	-77.8	-79.4	-79.8
800	-80.3	-79.9	-80.3	-80.1	-79.7	-79.8
1000	-80.6	-79.9	-80.5	-79.6	-80.4	-79.6
1200	-80.4	-80.3	-81.2	-80.4	-81.5	-82.1
1400	-81.4	-81.6	-82.7	-82.9	-82.2	-82.4
1600	-81.4	-82.5	-81.6	-83.1	-80.5	-82.6
1800	-82.2	-82.1	-82.7	-83.7	-82.5	-83.6

Measurement uncertainty (dB)		Equipment	Requirement
	Absolute power Relative power:- Offset (MHz) / Power difference (dB) $\delta f \leq 0.1$ / All $0.1 < \delta f \leq 1.8$ / <50 $0.1 < \delta f \leq 1.8$ / ≥50 $\delta f > 1.8$ / All	±0.6 ±0.3 ±0.45 ±1.3 ±1.3	±1.0 ±0.5 ±0.7 ±1.5 ±2.0

11.1.7.2.3 GMSK Static level 2

MEASUREMENT	ADJACENT CHANNEL POWER (dBc)					
	Channel B 1805.2 MHz		Channel M 1842.6 MHz		Channel T 1879.8 MHz	
Offset (kHz)	-	+	-	+	-	+
100	-10.0	-8.5	-10.0	-8.2	-9.8	-8.7
200	-37.3	-36.6	-37.1	-36.7	-37.1	-36.6
250	-42.1	-41.6	-41.8	-41.8	-41.8	-41.9
400	-62.5	-70.0	-63.4	-69.8	-62.5	-70.6
600	-79.1	-79.3	-79.0	-77.5	-79.5	-79.7
800	-79.7	-80.0	-79.7	-80.1	-79.4	-79.7
1000	-80.4	-80.0	-79.9	-79.2	-80.9	-80.1
1200	-81.5	-81.7	-81.2	-80.1	-81.4	-82.1
1400	-81.8	-81.4	-82.1	-82.3	-82.2	-82.7
1600	-81.5	-82.3	-80.9	-82.5	-80.7	-82.6
1800	-82.7	-83.1	-82.0	-82.7	-82.3	-83.3

Measurement uncertainty (dB)		Equipment	Requirement
	Absolute power Relative power:- Offset (MHz) / Power difference (dB) $\delta f \leq 0.1$ / All $0.1 < \delta f \leq 1.8$ / <50 $0.1 < \delta f \leq 1.8$ / ≥50 All	±0.6 ±0.3 ±0.45 ±1.3 ±1.3	±1.0 ±0.5 ±0.7 ±1.5 ±2.0

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	δf > 1.8		

11.1.7.2.4 GMSK Static level 3

MEASUREMENT		ADJACENT CHANNEL POWER (dBc)					
		Channel B 1805.2 MHz		Channel M 1842.6 MHz		Channel T 1879.8 MHz	
Offset (kHz)		-	+	-	+	-	+
100		-10.0	-8.5	-9.7	-8.6	-9.8	-7.9
200		-37.3	-36.5	-37.2	-36.6	-37.1	-38.5
250		-42.1	-41.5	-41.9	-41.9	-41.7	-41.6
400		-62.1	-70.6	-63.1	-69.9	-62.1	-70.4
600		-79.2	-79.4	-78.7	-77.1	-79.2	-79.2
800		-80.0	-80.0	-79.2	-79.5	-79.5	-79.3
1000		-80.7	-79.6	-79.5	-78.7	-80.2	-79.5
1200		-80.2	-80.1	-80.3	-79.8	-81.2	-81.6
1400		-80.8	-81.0	-81.0	-81.3	-81.4	-82.1
1600		-81.5	-81.9	-79.6	-81.5	-80.2	-81.6
1800		-82.2	-82.4	-81	-81.8	-81.6	-82.7
Measurement uncertainty (dB)				Equipment		Requirement	
	Absolute power Relative power:- Offset (MHz) / Power difference (dB)			±0.6		±1.0	
	δf ≤ 0.1 / All			±0.3		±0.5	
	0.1< δf ≤ 1.8 / <50			±0.45		±0.7	
	0.1< δf ≤ 1.8 / ≥50			±1.3		±1.5	
	δf > 1.8 / All			±1.3		±2.0	

11.1.7.2.5 GMSK Static level 4

MEASUREMENT		ADJACENT CHANNEL POWER (dBc)					
		Channel B 1805.2 MHz		Channel M 1842.6 MHz		Channel T 1879.8 MHz	
Offset (kHz)		-	+	-	+	-	+
100		-10.0	-8.1	-10.0	-8.1	-9.9	-8.2
200		-37.4	-36.3	-37.1	-36.7	-37.0	-36.5
250		-42.0	-41.6	-41.9	-41.7	-41.6	-41.6
400		-61.8	-70.4	-62.5	-69.8	-61.8	-70.3
600		-78.6	-78.8	-78.7	-76.9	-78.7	-79.1
800		-79.0	-79.5	-79.3	-79.3	-78.8	-79.1
1000		-79.7	-78.5	-79.6	-79.1	-80.0	-79.1
1200		-80.9	-80.3	-80.4	-79.7	-80.7	-81.3
1400		-80.7	-81.0	-80.9	-81.5	-81.0	-81.8
1600		-80.6	-80.8	-80.0	-81.2	-80.0	-81.4
1800		-80.9	-81.5	-81.0	-81.8	-80.9	-82.0
Measurement				Equipment		Requirement	

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uncertainty (dB)			
	Absolute power Relative power:- Offset (MHz) / Power difference (dB) δf ≤ 0.1 / All 0.1< δf ≤ 1.8 / <50 0.1< δf ≤ 1.8 / ≥50 δf > 1.8 / All	 ±0.3 ±0.45 ±1.3 ±1.3	±1.0 ±0.5 ±0.7 ±1.5 ±2.0

11.1.7.2.6 GMSK Static level 5

MEASUREMENT		ADJACENT CHANNEL POWER (dBc)					
		Channel B 1805.2 MHz		Channel M 1842.6 MHz		Channel T 1879.8 MHz	
Offset (kHz)		-	+	-	+	-	+
100		-9.9	-8.8	-10.0	-8.2	-9.6	-8.5
200		-37.2	-36.5	-37.1	-36.7	-37.1	-36.5
250		-42.1	-41.6	-41.8	-41.8	-41.7	-41.8
400		-61.4	-70.6	-62.3	-69.9	-60.8	-70.4
600		-78.4	-78.4	-78.0	-76.0	-78.2	-78.5
800		-78.5	-78.9	-78.3	-78.8	-78.6	-78.8
1000		-79.5	-79.2	-78.8	-78.3	-78.9	-78.7
1200		-80.0	-80.3	-79.6	-79.0	-79.9	-80.3
1400		-80.1	-80.8	-80.0	-80.6	-80.1	-80.5
1600		-79.7	-80.4	-79.2	-80.4	-79.0	-80.6
1800		-80.9	-81.3	-80.0	-80.8	-80.1	-81.0
Measurement uncertainty (dB)				Equipment		Requirement	
	Absolute power Relative power:- Offset (MHz) / Power difference (dB) δf ≤ 0.1 / All 0.1< δf ≤ 1.8 / <50 0.1< δf ≤ 1.8 / ≥50 δf > 1.8 / All			±0.6 ±0.3 ±0.45 ±1.3 ±1.3		±1.0 ±0.5 ±0.7 ±1.5 ±2.0	

11.1.7.2.7 GMSK Static level 6

MEASUREMENT	ADJACENT CHANNEL POWER (dBc)					
	Channel B 1805.2 MHz		Channel M 1842.6 MHz		Channel T 1879.8 MHz	
Offset (kHz)	-	+	-	+	-	+
100	-9.9	-9.1	-9.9	-8.8	-9.9	-9.0
200	-37.4	-36.8	-37.0	-36.7	-37.8	-36.8
250	-42.2	-41.5	-42.1	-41.8	-40.9	-41.6

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400	-61.1	-70.2	-62.0	-70.1	-54.4	-70.3
600	-78.1	-78.3	-77.7	-77.8	-78.7	-78.5
800	-78.6	-78.8	-78.0	-78.0	-78.4	-78.3
1000	-79.5	-78.9	-78.2	-77.8	-80.2	-78.6
1200	-79.4	-78.9	-78.7	-78.4	-80.8	-79.7
1400	-79.4	-79.8	-79.1	-79.6	-80.8	-80.0
1600	-80.0	-80.4	-78.5	-79.7	-80.2	-80.1
1800	-80.4	-80.4	-79.4	-80.0	-80.9	-80.3

Measurement uncertainty (dB)		Equipment	Requirement
	Absolute power Relative power:- Offset (MHz) / Power difference (dB) $\delta f \leq 0.1$ / All $0.1 < \delta f \leq 1.8$ / <50 $0.1 < \delta f \leq 1.8$ / ≥50 $\delta f > 1.8$ / All	±0.6 ±0.3 ±0.45 ±1.3 ±1.3	±1.0 ±0.5 ±0.7 ±1.5 ±2.0

11.1.7.3 8PSK

11.1.7.3.1 8PSK Static level 0

MEASUREMENT	ADJACENT CHANNEL POWER (dBc)					
	Channel B 1805.2 MHz		Channel M 1842.6 MHz		Channel T 1879.8 MHz	
Offset (kHz)	-	+	-	+	-	+
100	-8.5	-8.0	-8.2	-8.0	-8.5	-8.0
200	-37.2	-36.6	-38.7	-38.2	-38.4	-37.9
250	-41.6	-41.5	-42.5	-42.7	-43.1	-43.8
400	--59.4	--62.8	-60.4	-66.2	-60.6	-65.5
600	--74.2	-74.7	-74.5	-73.4	-74.1	-74.6
800	-77.7	-78.0	-77.7	-78.0	-77.1	-77.4
1000	-78.4	-77.7	-78.5	-77.9	-78.6	-77.9
1200	-79.0	-79.0	-78.3	-76.2	-78.8	-79.6
1400	-80.5	-81.2	-81.4	-81.5	-80.9	-81.5
1600	-78.3	-80.8	-79.3	-81.2	-78.5	-81.3
1800	-80.0	-80.5	-79.9	-80.9	-79.7	-80.8

Measurement uncertainty (dB)		Equipment	Requirement
	Absolute power Relative power:- Offset (MHz) / Power difference (dB) $\delta f \leq 0.1$ / All $0.1 < \delta f \leq 1.8$ / <50 $0.1 < \delta f \leq 1.8$ / ≥50 $\delta f > 1.8$ / All	±0.6 ±0.3 ±0.45 ±1.3 ±1.3	±1.0 ±0.5 ±0.7 ±1.5 ±2.0

11.1.7.3.2 8PSK Static level 1

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MEASUREMENT		ADJACENT CHANNEL POWER (dBc)					
		Channel B 1805.2 MHz		Channel M 1842.6 MHz		Channel T 1879.8 MHz	
Offset (kHz)		-	+	-	+	-	+
100		-8.5	-8.0	-8.4	-7.9	-8.4	-8.0
200		-37.9	-37.5	-38.7	-38.6	-38.8	-38.3
250		-41.4	-41.5	-42.1	-42.4	-42.9	-43.2
400		-59.8	-64.9	-60.5	-66.4	-60.3	-64.9
600		-74.0	-74.6	-74.0	-73.2	-73.3	-73.5
800		-77.9	-77.8	-77.7	-78.0	-77.0	-77.3
1000		-78.2	-77.5	-78.2	-77.6	-78.1	-77.3
1200		-78.7	-78.7	-77.8	-76.6	-78.6	-79.1
1400		-80.1	-80.5	-81.0	-81.3	-80.3	-80.9
1600		-78.4	-80.3	-79.0	-80.8	-78.2	-80.6
1800		-79.4	-79.9	-79.6	-80.8	-79.3	-80.5
Measurement uncertainty (dB)				Equipment		Requirement	
	Absolute power Relative power:- Offset (MHz) / Power difference (dB)			±0.6		±1.0	
	$\delta f \leq 0.1$ / All			±0.3		±0.5	
	$0.1 < \delta f \leq 1.8$ / <50			±0.45		±0.7	
	$0.1 < \delta f \leq 1.8$ / ≥50			±1.3		±1.5	
	$\delta f > 1.8$ / All			±1.3		±2.0	

11.1.7.3.3 8PSK Static level 2

MEASUREMENT		ADJACENT CHANNEL POWER (dBc)					
		Channel B 1805.2 MHz		Channel M 1842.6 MHz		Channel T 1879.8 MHz	
Offset (kHz)		-	+	-	+	-	+
100		-8.2	-7.7	-8.8	-7.9	-8.6	-7.8
200		-37.8	-37.9	-38.5	-38.8	-38.7	-38.9
250		-40.6	-41.1	-41.0	-41.6	-41.7	-42.4
400		-59.6	-65.7	-60.0	-66.4	-59.8	-64.9
600		-73.9	-74.2	-74.5	-73.6	-73.4	-73.4
800		-77.8	-78.1	-78.4	-78.4	-77.4	-77.3
1000		-78.0	-76.9	-78.1	-77.4	-77.9	-76.9
1200		-77.9	-78.3	-78.0	-76.9	-77.5	-78.3
1400		-79.2	-79.5	-80.1	-80.6	-79.0	-79.4
1600		-77.2	-79.4	-77.8	-80.3	-76.7	-79.4
1800		-78.6	-79.0	-79.0	-80.2	-78.4	-79.4
Measurement uncertainty (dB)				Equipment		Requirement	
	Absolute power Relative power:- Offset / Power			±0.6		±1.0	

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	(MHz)	difference (dB)		
	δf ≤ 0.1	All	±0.3	±0.5
	0.1< δf ≤ 1.8	<50	±0.45	±0.7
	0.1< δf ≤ 1.8	≥50	±1.3	±1.5
	δf > 1.8	All	±1.3	±2.0

11.1.7.3.4 8PSK Static level 3

MEASUREMENT		ADJACENT CHANNEL POWER (dBc)					
		Channel B 1805.2 MHz		Channel M 1842.6 MHz		Channel T 1879.8 MHz	
Offset (kHz)		-	+	-	+	-	+
100		-8.3	-8.0	-8.9	-7.9	-8.2	-7.7
200		-37.9	-38.0	-38.2	-38.6	-38.4	-38.6
250		-40.5	-40.8	-40.6	-41.2	-41.0	-41.7
400		-59.4	-65.6	-59.7	-65.8	-59.4	-64.4
600		-74.9	-75.4	-75.6	-74.0	-74.4	-74.4
800		-78.3	-78.2	-78.3	-78.3	-77.9	-78.0
1000		-78.0	-77.0	-78.2	-77.3	-78.0	-77.2
1200		-78.0	-78.3	-77.8	-76.5	-78.0	-78.6
1400		-79.3	-79.9	-79.7	-80.0	-79.6	-80.0
1600		-77.5	-79.7	-77.9	-79.8	-77.8	-79.9
1800		-78.9	-79.2	-78.7	-79.8	-78.9	-79.9
Measurement uncertainty (dB)				Equipment		Requirement	
	Absolute power			±0.6		±1.0	
	Relative power:-						
	Offset (MHz)	Power difference (dB)					
	δf ≤ 0.1	All		±0.3		±0.5	
	0.1< δf ≤ 1.8	<50		±0.45		±0.7	
	0.1< δf ≤ 1.8	≥50		±1.3		±1.5	
	δf > 1.8	All		±1.3		±2.0	

11.1.7.3.5 8PSK Static level 4

MEASUREMENT	ADJACENT CHANNEL POWER (dBc)					
	Channel B 1805.2 MHz		Channel M 1842.6 MHz		Channel T 1879.8 MHz	
Offset (kHz)	-	+	-	+	-	+
100	-8.5	-8.0	-8.6	-8.1	-8.3	-7.8
200	-37.8	-38.0	-38.3	-38.4	-38.3	-38.4
250	-40.3	-40.6	-40.6	-40.9	-40.7	-41.4
400	-59.1	-65.8	-59.3	-66.1	-59.3	-64.8
600	-75.9	-76.6	-75.8	-74.2	-75.2	-75.6
800	-78.0	-78.0	-77.3	-77.6	-78.1	-77.9
1000	-77.7	-76.7	-77.4	-76.9	-77.8	-77.2
1200	-77.9	-78.0	-77.0	-76.1	-77.6	-78.1

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1400	-79.0	-79.4	-78.6	-78.8	-79.3	-79.5
1600	-77.5	-79.0	-76.6	-78.7	-77.9	-79.5
1800	-78.5	-78.9	-78.0	-78.6	-78.6	-79.6

Measurement uncertainty (dB)		Equipment	Requirement
	Absolute power Relative power:- Offset (MHz) / Power difference (dB) $\delta f \leq 0.1$ / All $0.1 < \delta f \leq 1.8$ / <50 $0.1 < \delta f \leq 1.8$ / ≥50 $\delta f > 1.8$ / All	 ±0.3 ±0.45 ±1.3 ±1.3	±1.0 ±0.5 ±0.7 ±1.5 ±2.0

11.1.7.3.6 8PSK Static level 5

MEASUREMENT	ADJACENT CHANNEL POWER (dBc)					
	Channel B 1805.2 MHz		Channel M 1842.6 MHz		Channel T 1879.8 MHz	
Offset (kHz)	-	+	-	+	-	+
100	-8.8	-8.0	-8.6	-8.2	-8.6	-8.1
200	-37.8	-38.2	-38.3	-38.6	-38.4	-38.6
250	-40.3	-40.6	-40.5	-41.1	-40.7	-41.1
400	-59.0	-66.5	-59.3	-66.8	-59.1	-65.8
600	-76.5	-76.7	-76.7	-74.9	-75.9	-76.3
800	-77.5	-77.6	-77.9	-77.9	-76.8	-77.2
1000	-77.4	-76.7	-77.6	-77.3	-76.9	-76.4
1200	-77.4	-77.6	-77.0	-76.0	-76.9	-77.1
1400	-78.7	-79.0	-79.0	-79.4	-78.0	-78.3
1600	-77.1	-78.9	-77.2	-79.2	-76.4	-78.2
1800	-78.2	-78.6	-78.4	-79.2	-77.4	-78.1

Measurement uncertainty (dB)		Equipment	Requirement
	Absolute power Relative power:- Offset (MHz) / Power difference (dB) $\delta f \leq 0.1$ / All $0.1 < \delta f \leq 1.8$ / <50 $0.1 < \delta f \leq 1.8$ / ≥50 $\delta f > 1.8$ / All	±0.6 ±0.3 ±0.45 ±1.3 ±1.3	±1.0 ±0.5 ±0.7 ±1.5 ±2.0

11.1.7.3.7 8PSK Static level 6

MEASUREMENT	ADJACENT CHANNEL POWER (dBc)		
	Channel B 1805.2 MHz	Channel M 1842.6 MHz	Channel T 1879.8 MHz

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Offset (kHz)		-	+	-	+	-	+
100		-8.5	-8.1	-8.4	-8.1	-8.7	-8.0
200		-38.2	-38.3	-38.4	-38.5	-38.1	-38.7
250		-40.4	-40.6	-40.7	-41.1	-40.5	-41.2
400		-58.7	-67.1	-59.3	-67.5	-59.2	-66.9
600		-75.8	-76.1	-75.9	-74.6	-76.1	-76.8
800		-76.6	-76.5	-76.5	-76.8	-76.7	-76.7
1000		-76.6	-76.0	-76.7	-76.0	-77.0	-76.6
1200		-76.4	-76.8	-76.3	-75.4	-76.8	-77.2
1400		-77.2	-77.7	-77.3	-77.7	-77.8	-78.1
1600		-76.0	-77.4	-76.1	-77.6	-76.8	-78.2
1800		-76.7	-77.5	-77.1	-77.7	-77.1	-78.3
Measurement uncertainty (dB)				Equipment		Requirement	
	Absolute power Relative power:- Offset (MHz) / Power difference (dB) $\delta f \leq 0.1$ / All $0.1 < \delta f \leq 1.8$ / <50 $0.1 < \delta f \leq 1.8$ / ≥50 $\delta f > 1.8$ / All			±0.6 ±0.3 ±0.45 ±1.3 ±1.3		±1.0 ±0.5 ±0.7 ±1.5 ±2.0	

11.1.7.4 Essential conformance requirements clause 6.5.3.1

Normal BTS								
Transmit Band Carrier Offset (kHz)	100	200	250	400	600 to <1200	1200 to <1800	1800 to ≤ 6000	>6000
Limit (dBc)**	≤ +0.5	≤ -30	≤ -33	≤ -60*	≤ -70	≤ -73	≤ -75	≤ -80
	For equipment supporting 8-PSK, the requirement at 8-PSK modulation is -56 dB.							

Remarks
** For a GSM1800 BTS, if the limit is below -65dBm, a value of -65dBm shall be used instead.

11.1.7.5 Result
The equipments **passed** the requirement of this clause.

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11.1.8 Adjacent Channel Power Clause 6.5- Switching transient spectrum clause 6.5.2

Declared maximum output power: 43 dBm GMSK Declared maximum output power: 41.8 dBm 8PSK	Code A: RRU 3004
Measurement carried out at BSS output (antenna connector)	Date of testing: 11.28.2007-11.30.2007

SFH Enabled and disabled	All timeslots active at full power
Ambient temperature 25-27 °C	Relative humidity 55-65 %

11.1.8.1 GMSK

MEASUREMENT		ADJACENT CHANNEL POWER (dBc)					
		Channel B 1805.2 MHz		Channel M 1842.6 MHz		Channel T 1879.8 MHz	
Timeslot Power Levels	Offset (kHz)	-	+	-	+	-	+
0 (maximum static power level)	400 600 1200 1800	-60.8 -81.4 -78.3 -80.9	-67.5 -81.0 -79.5 -83.2	-60.0 -80.1 -80.0 -83.4	-66.4 -79.8 -78.5 -83.4	-60.4 -80.4 -81.7 -81.5	-66.4 -78.7 -81.5 -82.8
6 (minimum static power level)	400 600 1200 1800	-60.1 -77.1 -77.1 -77.1	-68.7 -77.1 -77.1 -77.1	-58.2 -75.6 -76.2 -76.2	-67.9 -76.2 -76.2 -76.2	-59.4 -76.2 -76.2 -76.2	-67.9 -76.2 -76.2 -76.2
Measurement uncertainty (dB)		Equipment			Requirement		
	Absolute power: Relative power: - Power difference (dB) <50 ≥50	< 0.6 dB < 0.45 dB < 1.2 dB			±1.5 ±0.7 ±1.5		

11.1.8.2 8PSK

MEASUREMENT		ADJACENT CHANNEL POWER (dBc)					
		Channel B 1805.2 MHz		Channel M 1842.6 MHz		Channel T 1879.8 MHz	
Timeslot Power Levels	Offset (kHz)	-	+	-	+	-	+
0 (maximum static power level)	400 600 1200 1800	-55.4 -72.5 -78.7 -78.7	-56.6 -73.7 -77.5 -78.7	-56.9 -71.9 -78.7 -78.7	-61.1 -71.4 -77.2 -78.7	-56.5 -69.8 -79.6 -80.1	-56.6 -69.2 -79.2 -80.4
6 (minimum static power level)	400 600 1200 1800	-56.3 -74.8 -74.8 -74.8	-63.8 -74.8 -74.8 -74.8	-56.5 -75.0 -75.0 -75.0	-65.4 -75.0 -75.0 -75.0	-57.9 -74.9 -74.9 -74.9	-64.8 -74.9 -74.9 -74.9

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Measurement uncertainty (dB)		Equipment	Requirement
	Absolute power:	< 0.6 dB	±1.5
	Relative power: - Power difference (dB)		
	<50	< 0.45 dB	±0.7
	≥50	< 1.2 dB	±1.5

11.1.8.3 Essential conformance requirements clause 6.5.2.3

GMSK				
Carrier Offset (kHz)	400	600	1200	1800
Limit	≤ -57dBc or ≤ -36dBm	≤ -67dBc or ≤ -36dBm	≤ -74dBc or ≤ -36dBm	≤ -74dBc or ≤ -36dBm

8PSK				
Carrier Offset (kHz)	400	600	1200	1800
Limit	≤ -52dBc or ≤ -36dBm	≤ -62dBc or ≤ -36dBm	≤ -74dBc or ≤ -36dBm	≤ -74dBc or ≤ -36dBm

11.1.8.4 Result

The equipments **passed** the requirement of this clause.

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11.1.9 Conducted Spurious Emissions from The Transmitter Antenna Connector Clause 6.6

11.1.9.1 Inside the BTS transmit band clause 6.6.1 GSM Band

Declared maximum output power ： 43 dBm GMSK	Code A: RRU 3004
Measurement carried out at antenna connector	Date of testing: 12.01.2007-12.05.2007

SFH Disabled	All timeslots active
Ambient temperature 25-27 °C	Relative humidity 55-65 %

Power level at which the measurement was carried out 0 (maximum):

11.1.9.1.1 Channel B

FREQUENCY (MHz)	SPURIOUS EMISSION LEVEL (dBm) Highest measured value	
	Channel B 1805.2 MHz	
1807-1811.2	- 50.62	
1811.2-1880	- 48.04	
	Equipment	Requirement
Measurement uncertainty (dB)	< 1.2 dB	±1.5

11.1.9.1.2 Channel M

FREQUENCY (MHz)	SPURIOUS EMISSION LEVEL (dBm) Highest measured value	
	Channel M 1842.6MHz	
1805-1836.6	-48.22	
1836.6-1840.8	-47.53	
1844.2-1848.6	-50.77	
1848.6-1880	-48.28	
	Equipment	Requirement
Measurement uncertainty (dB)	< 1.2 dB	±1.5

11.1.9.1.3 Channel T

FREQUENCY (MHz)	SPURIOUS EMISSION LEVEL (dBm) Highest measured value
	Channel T 1879.8 MHz
1805 – 1873.8	-49.65
1873.8-1878.2	-47.12

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	Equipment	Requirement
Measurement uncertainty (dB)	< 1.2 dB	±1.5

11.1.9.1.4 Essential conformance requirements clause 6.6.1.3

Limit	≤ -36dBm

11.1.9.1.5 Result

The equipments **passed** the requirement of this clause.

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11.1.9.2 Outside the DCS 1800M transmit bands clause 6.6.2

Frequency range 100 KHz to 12.75 GHz

Declared maximum output power : 43 dBm GMSK	Code A: RRU 3004
Measurement carried out at antenna connector	Date of testing: 12.05.2007-12.10.2007

SFH Disabled	All timeslots active
Ambient temperature 25-27 °C	Relative humidity 55-65 %

11.1.9.2.1 Test result

FREQUENCY (MHz)	SPURIOUS EMISSION LEVEL (dBm) Highest measured value Channel M 1842.6MHz
0.1 – 50.0	-38.83
50.0 – 500.0	-49.26
500.0 – 876.0	-38.45
915.0 – 921.0	-38.66
960.0 – 1000.0	-38.98
1000.0– 1795.0	-44.04
1795.0 – 1800.0	-55.06
1800.0 –1803.0	-51.41
1882.0 – 1885.0	-45.60
1885.0 –1890.0	-48.82
1890.0 –1900.0	-53.60
1980.0-2010.0	-42.96
2025.0-2110.0	-41.44
2170.0-8000.0	-41.51
8000.0-12750.0	n.a*

Measurement uncertainty (dB)		Equipment	Requirement
	f ≤ 2 GHz 2 GHz < f ≤ 4 GHz > 4 GHz	< 1.4 dB < 1.95 dB < 2.5 dB	±1.5 dB ±2.0 dB ±4.0 dB

*Note:Due to the max.bandwidth of the test equipment FSQ8 is to 8GHz,so the final test bandwith is to 8GHz.

11.1.9.2.2 Essential conformance requirements clause 6.6.3.2

Limit	<1GHz	≤ -36 dBm

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	>1GHz	≤ -30 dBm

11.1.9.2.3 Result

The equipments **passed** the requirement of this clause.

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11.1.9.3 Outside the BTS transmit band clause 6.6.2 index c,d

Index c; 1805 MHz to 1880 MHz (for GSM 1800) or 921 MHz to 960 MHz (for DCS 1800)
Index d; 1710 MHz to 1785 MHz (for GSM 1800) or 876 MHz to 915 MHz (for DCS 1800)

Declared maximum output power 43 dBm	Code A: RRU 3004
Measurement carried out at antenna connector	Date of testing: 12.05.2007-12.10.2007

SFH Disabled	All timeslots active
Ambient temperature 25-27 °C	Relative humidity 55-65 %

11.1.9.3.1 Test result

FREQUENCY (MHz)		SPURIOUS EMISSION LEVEL (dBm)	
921-960		-52.60 (B)	
876-915		-106.30(B)	
921-960		-58.35 (M)	
876-915		-106.05(M)	
921-960		-58.69(T)	
876-915		-106.02(T)	
Measurement uncertainty (dB)		Equipment	Requirement
	f ≤ 2 GHz 2 GHz < f ≤ 4 GHz > 4 GHz	< 1.4 dB < 1.95 dB < 2.5 dB	±1.5 dB ±2.0 dB ±4.0 dB

11.1.9.3.2 Essential conformance requirements clause 6.6.2.3

Tx Mode	DCS 1800
(921-960)limit	-47 dBm
(876-915) limit	-98dBm

11.1.9.3.3 Result

The equipments **passed** the requirement of this clause.

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11.1.10 Intermodulation Attenuation Clause 6.7

INTERMODULATION PRODUCT
FALLING IN THE TRANSMIT BAND (1805.0to 1880.0 MHz) (For DCS 1800)

Declared maximum output power 43 dBm	Code A: RRU 3004
Measurement carried out at antenna connector	Date of testing: 12.01.2007-12.05

SFH Disabled	All time slots active
Ambient temperature 25-27 °C	Relative humidity 55-65 %

11.1.10.1 Test result

11.1.10.1.1 Intermodulation product frequency offsets greater than 6 MHz

INTERFERING SIGNAL		Intermodulation Product (dBm)					
		Channel 512 1805.2 MHz		Channel 699 1842.6 MHz		Channel 885 1879.8 MHz	
		+	-	+	-	+	-
(3rd order) -3.2 MHz offset		n.a	n.a	n.a	-42.29	n.a	-41.70
(3rd order) -6.2 MHz offset		n.a	n.a	-42.47	-42.40	n.a	-41.89
(3rd order) +6.2 MHz offset		-42.62	n.a	-43.00	-42.11	n.a	n.a
(3rd order) +3.2 MHz offset		-42.11	n.a	-46.39	n.a	n.a	n.a
(5th order) -3.2 MHz offset		n.a	n.a	-42.42	-42.10	n.a	-42.98
(5th order) -6.2 MHz offset		n.a	n.a	-43.33	-42.68	n.a	-44.77
(5th order) +6.2 MHz offset		-42.26	n.a	-42.96	-41.59	n.a	n.a
(5th order)+3.2 MHz offset		-41.50	n.a	-42.57	-42.42	n.a	n.a
Measurement uncertainty (dB)		Equipment			Requirement		
	Absolute level, Relative level	< 1.35 dB < 1.76 dB			±1.5 ±2.0		

The figures in parentheses ( ) indicate the offset of the intermodulation product from the channel frequency. They are included for information only and will not appear in the final test report.

11.1.10.1.2 Intermodulation product frequency offsets between 1.8 and 6 MHz

INTERFERING SIGNAL	Intermodulation Product (dBm)					
	Channel 512 1805.2 MHz		Channel 699 1842.6 MHz		Channel 885 1879.8 MHz	
	+	-	+	-	+	-
(3rd order) -3.2 MHz offset	n.a	n.a	-39.78	n.a	n.a	n.a
(3rd order) -2.0 MHz offset	n.a	n.a	-39.67	-42.84	n.a	-42.18
(3rd order) +2.0 MHz offset	-39.99	n.a	-42.76	-40.02	n.a	n.a

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(3rd order) +3.2 MHz offset		n.a	n.a	n.a	-39.30	n.a	n.a
(5th order) -3.2 MHz offset		n.a	n.a	n.a	n.a	n.a	n.a
(5th order) -2.0 MHz offset		n.a	n.a	-42.68	-45.27	n.a	-41.84
(5th order) -0.8 MHz offset		n.a	n.a	n.a	-40.65	n.a	-41.11
(5th order) +0.8 MHz offset		-43.74	n.a	-40.38	n.a	n.a	n.a
(5th order) +2.0 MHz offset		-45.36	n.a	-46.42	-42.54	n.a	n.a
(5th order) +3.2 MHz offset		n.a	n.a	n.a	n.a	n.a	n.a
Measurement uncertainty (dB)		Equipment			Requirement		
	Absolute level Relative level	< 1.35 dB < 1.76 dB			±1.5 ±2.0		

11.1.10.1.3 Intermodulation product frequency offsets less than 1.8 MHz

INTERFERING SIGNAL		Intermodulation Product (dBm)					
		Channel 512 1805.2 MHz		Channel 699 1842.6 MHz		Channel 885 1879.8 MHz	
		+	-	+	-	+	-
(3rd order) -0.8 MHz offset		n.a	n.a	-44.98	-46.42	n.a	-39.45
(3rd order) +0.8 MHz offset		-38.78	n.a	-40.08	-45.82	n.a	n.a
(5th order) -0.8 MHz offset		n.a	n.a	-46.42	n.a	n.a	n.a
(5th order) +0.8 MHz offset		n.a	n.a	n.a	-47.16	n.a	n.a
Measurement uncertainty (dB)		Equipment			Requirement		
	Absolute level Relative level	< 1.35 dB < 1.76 dB			±1.5 ±2.0		

The figures in parentheses ( ) indicate the offset of the intermodulation product from the channel frequency. They are included for information only and will not appear in the final test report.

11.1.10.2 Essential conformance requirements clause 6.7.3

NORMAL BTS								
Transmit Band Carrier Offset (kHz)	100	200	250	400	600 to <1200	1200 to <1800	1800 to ≤ 6000	>6000
Limit (dBc)**	≤ +0.5	≤ -30	≤ -33	≤ -60	≤ -70	≤ -73	≤ -75	≤ -70dBc or ≤ -36dBm

11.1.10.3 Result

The equipments **passed** the requirement of this clause.

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11.1.11 Intra Base Station System Intermodulation Attenuation Clause 6.8

INTERMODULATION PRODUCT
FALLING IN THE TRANSMIT BAND (1805.0 to 1880.0 MHz) (For DCS 1800)

Declared maximum output power : 43 dBm GMSK	Code A: RRU 3004
Measurement carried out at antenna connector	Date of testing: 12.10.2007-12.15.2007

SFH Disabled	All time slots active
Ambient temperature 25-27 °C	Relative humidity 55-65 %

11.1.11.1 Test result

11.1.11.1.1 Intermodulation product frequency offsets greater than 6 MHz

INTERFERING SIGNAL		Intermodulation Product (dBm)					
		Channel 512 1805.2 MHz		Channel 699 1842.6 MHz		Channel 885 1879.8 MHz	
		+	-	+	-	+	-
(3rd order) -3.2 MHz offset		n.a	n.a	n.a	-42.26	n.a	-39.64
(3rd order) -6.2 MHz offset		n.a	n.a	-42.14	-41.69	n.a	-40.35
(3rd order) +6.2 MHz offset		-42.90	n.a	-42.17	-42.29	n.a	n.a
(3rd order) +3.2 MHz offset		-39.27	n.a	-42.61	n.a	n.a	n.a
(5th order) -3.2 MHz offset		n.a	n.a	-38.35	-42.10	n.a	-42.32
(5th order) -6.2 MHz offset		n.a	n.a	-42.52	-43.07	n.a	-43.13
(5th order) +6.2 MHz offset		-42.98	n.a	-38.95	-39.64	n.a	n.a
(5th order)+3.2 MHz offset		-43.43	n.a	-38.17	-38.27	n.a	n.a
Measurement uncertainty (dB)		Equipment			Requirement		
	Absolute level, Relative level	< 1.35 dB < 1.76 dB			±1.5 ±2.0		

The figures in parentheses ( ) indicate the offset of the intermodulation product from the channel frequency. They are included for information only and will not appear in the final test report.

11.1.11.1.2 Intermodulation product frequency offsets between 1.8 and 6 MHz

INTERFERING SIGNAL	Intermodulation Product (dBm)					
	Channel 512 1805.2 MHz		Channel 699 1842.6 MHz		Channel 885 1879.8 MHz	
	+	-	+	-	+	-
(3rd order) -3.2 MHz offset	n.a	n.a	-40.09	n.a	n.a	n.a
(3rd order) -2.0 MHz offset	n.a	n.a	-39.28	-42.82	n.a	-38.81
(3rd order) +2.0 MHz offset	-42.66	n.a	-42.62	-39.34	n.a	n.a

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(3rd order) +3.2 MHz offset		n.a	n.a	n.a	-41.12	n.a	n.a
(5th order) -3.2 MHz offset		n.a	n.a	n.a	n.a	n.a	n.a
(5th order) -2.0 MHz offset		n.a	n.a	-42.06	-46.11	n.a	-41.97
(5th order) -0.8 MHz offset		n.a	n.a	n.a	-41.06	n.a	-40.76
(5th order) +0.8 MHz offset		-50.42	n.a	-40.87	n.a	n.a	n.a
(5th order) +2.0 MHz offset		-46.98	n.a	-40.57	-42.42	n.a	n.a
(5th order) +3.2 MHz offset		n.a	n.a	n.a	n.a	n.a	n.a
Measurement uncertainty (dB)		Equipment			Requirement		
	Absolute level Relative level	< 1.35 dB < 1.76 dB			±1.5 ±2.0		

11.1.11.1.3 Intermodulation product frequency offsets less than 1.8 MHz

INTERFERING SIGNAL		Intermodulation Product (dBm)					
		Channel 512 1805.2 MHz		Channel 699 1842.6 MHz		Channel 885 1879.8 MHz	
		+	-	+	-	+	-
(3rd order) -0.8 MHz offset		n.a	n.a	-44.75	-42.82	n.a	-38.81
(3rd order) +0.8 MHz offset		-49.54	n.a	-45.96	-44.12	n.a	n.a
(5th order) -0.8 MHz offset		n.a	n.a	-40.64	n.a	n.a	n.a
(5th order) +0.8 MHz offset		n.a	n.a	n.a	-42.81	n.a	n.a
Measurement uncertainty (dB)		Equipment			Requirement		
	Absolute level Relative level	< 1.35 dB < 1.76 dB			±1.5 ±2.0		

The figures in parentheses ( ) indicate the offset of the intermodulation product from the channel frequency. They are included for information only and will not appear in the final test report.

11.1.11.2 Essential conformance requirements clause 6.7.3

NORMAL BTS (in the operating TX band)								
Transmit Band Carrier Offset (kHz)	100	200	250	400	600 to <1200	1200 to <1800	1800 to ≤ 6000	>6000
Limit (dBc)**	≤ +0.5	≤ -30	≤ -33	≤ -60	≤ -70	≤ -73	≤ -75	≤ -70dBc or ≤ -36dBm

11.1.11.3 Result

The equipments **passed** the requirement of this clause.

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11.2 Receiver Measurements

11.2.1 Static Reference Sensitivity Level Clause 7.3.

Declared maximum output power 43 dBm GMSK Declared maximum output power 41.8dBm 8PSK	Code A: RRU 3004
Measurement performed on antenna connector	All timeslots active
	Date of testing: 11.20.2007-11.22.2007

SFH Disabled	All timeslots active, measured on slot 2
Ambient temperature 25-27 °C	Relative humidity 55-65 %

11.2.1.1 Test Result

TEST CONDITIONS	CHANNEL TYPE	RESIDUAL BIT ERROR/FRAME ERASURE RATIO (%)	
		Channel (M) 1747.6MHz	
Non Hopping	TCH/FS FER** TCH/FS Class Ib** TCH/FS Class II	0.0 0.0 0.0	
Measurement uncertainty (dB)		Equipment	Requirement
		± 0.6 dB	±1.0

TEST CONDITIONS	CHANNEL TYPE	RESIDUAL BIT ERROR/FRAME ERASURE RATIO (%)	
		Channel (M) 1747.6 MHz	
Non Hopping	PDTCH/DBLER	0.76	
Measurement uncertainty (dB)		Equipment	Requirement
		± 0.6 dB	±1.0

11.2.1.2 Essential conformance requirements clause 7.3.3

Channel Type	Error Measure	
	FER(%)	RBER(%)
TCH/FS TCH/FS-Class Ib TCH/FS-Class II	$\leq 0.1\alpha$ (0.10 to 0.16) - -	- $\leq 0.4/\alpha$ (0.25 to 0.40) ≤ 2.0

Where $1.0 \leq \alpha \leq 1.6$ and the same for both occurrences. ** Indicate which value(s) of α were used to demonstrate conformance.

Channel Type	Error Measure
	DBLER(%)
PDTCH(MCS1~9)	10

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11.2.1.3 Result

The equipments **passed** the requirement of this clause.

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11.2.2 Multipath Reference Sensitivity Level Clause 7.4

Declared maximum output power 43 dBm GMSK Declared maximum output power 41.8 dBm 8PSK	Code A: RRU 3004
Measurement performed on antenna connector	Both TRX on transmitting full power
	Date of testing: 11.20.2007-11.30.2007

SFH Disabled	All timeslots active, measured on slot 2
Ambient temperature 25-27 °C	Relative humidity 55-65 %

11.2.2.1 Multipath Reference Sensitivity Level – 1800M

MULTIPATH TEST CONDITION	CHANNEL TYPE	RESIDUAL BIT ERROR/FRAME ERASURE RATIO (%)		
		Channel B 1710.2MHz	Channel M 1747.6 MHz	Channel T 1784.8 MHz
TU50/No SFH	TCH/FS FER** TCH/FS Class Ib** TCH/FS Class II	1.45 0.12 5.75	1.25 0.08 5.72	2.48 0.17 6.54
RA130 or RA250/No SFH	TCH/FS FER** TCH/FS Class Ib** TCH/FS Class II	0.71 0.04 5.76	0.95 0.05 5.06	0.68 0.03 4.68
HT100/No SFH	TCH/FS FER** TCH/FS Class Ib** TCH/FS Class II	2.79 0.21 6.96	2.56 0.14 6.45	2.34 0.17 6.46
TU50/No SFH	PDTCH/DBLER	6.9	8.4	9.4
RA130 or RA250/No SFH	PDTCH/DBLER	8.1	9.1	8.4
HT100/No SFH	PDTCH/DBLER	8.6	8.4	8.9
Measurement uncertainty (dB)		Equipment	Requirement	
		± 0.8 dB	±1.5	

11.2.2.2 Essential conformance requirements clause 7.4.3

Channel Type	Error Measure	Error Ratio for the specified propagation conditions (%)		
		TU50 (No SFH)	RA250 (No SFH)	HT100 (No SFH)
TCH/FS	FER	$\leq 6.0\alpha$ (6.0 to 9.6)	$\leq 2.0\alpha$ (2.0 to 3.2)	$\leq 7.0\alpha$ (7.0 to 11.2)
TCH/FS-Class Ib	RBER	$\leq 0.4/\alpha$ (0.25 to 0.40)	$\leq 0.2/\alpha$ (0.125 to 0.20)	$\leq 0.5/\alpha$ (0.3125 to 0.50)
TCH/FS-Class II	RBER	≤ 8.0	≤ 7.0	≤ 9.0
PDTCHMCS9	DBLER	<10%	<10%	<10%

11.2.2.3 Result

The equipments **passed** the requirement of this clause.

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11.2.3 Reference Interference Level Clause 7.5

Declared maximum output power 43 dBm GMSK Declared maximum output power 41.8 dBm 8PSK	Code A: RRU 3004
Measurement performed on antenna connector	Both TRX on transmitting full power
	Date of testing: 11.15.2007 – 12.15.2007

SFH Disabled/Enabled	All timeslots active, measured on slot 2
Ambient temperature 25-27 °C	Relative humidity 55-65 %

11.2.3.1 Reference Interference Level -1800M

MULTIPATH TEST CONDITION TU3	CHANNEL TYPE	RESIDUAL BIT ERROR/FRAME ERASURE RATIO (%)		
Offset (kHz)		Channel B 1710.2MHz	Channel M 1747.6 MHz	Channel T 1784.8 MHz
0 (SFH)	TCH/FS FER** TCH/FS Class Ib** TCH/FS Class II	n.a [1])	n.a [1])	n.a [1])
0 (No SFH)	TCH/FS FER** TCH/FS Class Ib** TCH/FS Class II	15.62 0.35 2.102	15.32 0.32 2.053	16.41 0.21 2.021
+200 (No SFH)	TCH/FS FER** TCH/FS Class Ib** TCH/FS Class II	1.4 0.09 3.83	1.6 0.07 3.02	1.5 0.06 3.5
-200 (No SFH)	TCH/FS FER** TCH/FS Class Ib** TCH/FS Class II	1.4 0.12 4.01	2.0 0.11 4.01	2.4 0.15 4.25
+400 (No SFH)	TCH/FS FER** TCH/FS Class Ib** TCH/FS Class II	0 0 0.068	0 0 0.065	0 0 0.069
-400 (No SFH)	TCH/FS FER** TCH/FS Class Ib** TCH/FS Class II	0 0 0.089	0 0 0.085	0. 0 0.087
Measurement uncertainty (dB)		Equipment	Requirement	
		± 0.8 dB	+5, -0	

MULTIPATH TEST CONDITION TU50	CHANNEL TYPE	RESIDUAL BIT ERROR/FRAME ERASURE RATIO (%)		
Offset (kHz)		Channel B 1710.2MHz	Channel M 1747.6 MHz	Channel T 1784.8 MHz
0 (SFH)	PDTCH/MCS9 DBLER	n.a [1])	n.a [1])	n.a [1])
0 (No SFH)	PDTCH/MCS9 DBLER	5.61	6.45	5.72
+200 (No SFH)	PDTCH/MCS9	7.84	7.72	6.65

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	DBLER			
-200 (No SFH)	PDTCH/MCS9 DBLER	7.52	8.52	7.44
+400 (No SFH)	PDTCH/MCS9 DBLER	9.84	8.92	8.84
-400 (No SFH)	PDTCH/MCS9 DBLER	9.45	9.42	8.62
Measurement uncertainty (dB)		Equipment	Requirement	
		± 0.8 dB	+5, -0	

11.2.3.2 Essential conformance requirements

11.2.3.2.1 Essential conformance requirements clause 7.5.3 DCS 1800

Channel Type	Error Measure	Error ratio for the specified propagation conditions (%)		
		TU3 (No SFH)	TU50 (No SFH)	
		Co-channel	200 kHz offset	400 kHz offset
TCH/FS TCH/FS-Class Ib TCH/FS-Class II	FER RBER RBER	$\leq 21\alpha$ (21 to 33) $\leq 2/\alpha$ (1.25 to 2) ≤ 4.0	$\leq 6.0\alpha$ (6.0 to 9.6) $\leq 0.4/\alpha$ (0.25 to 0.40) ≤ 8.0	$\leq 10.2\alpha$ (10.2 to 16.32) $\leq 0.72/\alpha$ (0.45 to 0.72) ≤ 8.8
PDTCH/MCS9	DBLER	<10%	10%	10%

Where $1.0<\alpha<1.6$ and the same for both occurrences in each channel condition. It may be different for different propagation conditions. ** Indicate which value(s) of α were used to demonstrate conformance.

11.2.3.3 Result

The equipments **passed** the requirement of this clause.

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11.2.4 Blocking Characteristics Clause 7.6

Declared maximum output power 43 dBm GMSK Declared maximum output power 41.8 dBm 8PSK	Code A: RRU 3004
Measurement performed on antenna connector	Both TRX on transmitting full power
	Date of testing: 11.30.2007 – 12.10.2007

SFH Disabled	
Ambient temperature 25-27 °C	Relative humidity 55-65 %

11.2.4.1 Blocking characteristics-1800M

Blocking Points (MHz)	RESIDUAL BIT ERROR RATIO - TCH/FS Class II bits (%)		
		Channel M 1747.6 MHz	
		Blocking	
1746.8		4.028	
1747		4.02	
1748.2		4.397	
Spurious responses			
All other frequency point		<2	
Measurement uncertainty (dB)		Equipment	Requirement
	Wanted signal Interfering signal f ≤ 2 GHz 2 GHz < f ≤ 4 GHz f > 4 GHz	±0.8 ±0.7 ±1.2 ±2.3	±1.0 ±0.7 ±1.5 ±3.0

Blocking Points (MHz)	RESIDUAL BIT ERROR RATIO – PDTCH/MCS5 BLER (%)		
		Channel M 1747.6 MHz	
		Blocking	
1746.6		0.19	
1748.2		0.38	
1748.4		0.19	
Spurious responses			
All other frequency point		<2	
Measurement uncertainty (dB)		Equipment	Requirement
	Wanted signal Interfering signal f ≤ 2 GHz	±0.8 ±0.7	±1.0 ±0.7

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	2 GHz < f ≤ 4 GHz f > 4 GHz	±1.2 ±2.3	±1.5 ±3.0

11.2.4.2 Essential conformance requirements

11.2.4.2.1 Essential conformance requirements Blocking GSM 1800 clause 7.6.3

Limit	≤ 2.0% (RBER)	
Allowable exceptions TCH/FS	≤ 45 MHz offset ≤ 6 of which no more than 3 are consecutive	> 45 MHz offset ≤ 24 of which no more than 3 are consecutive

Limit	≤ 10% (BLER)	
Allowable exceptions PDTCH/MCS5	≤ 45 MHz offset ≤ 6 of which no more than 3 are consecutive	> 45 MHz offset ≤ 24 of which no more than 3 are consecutive

11.2.5 Essential conformance requirements Spurious Response clause 7.6.3

Limit	≤ 2.0% at -43 dBm interfering signal level
Allowable exceptions	None

11.2.5.1 Result

The equipments **passed** the requirement of this clause.

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11.2.6 Intermodulation Characteristics Clause 7.7

Declared maximum output power 43 dBm GMSK Declared maximum output power 41.8 dBm 8PSK	Code A: RRU 3004
Measurement performed on antenna connector	One TRX measured
	Date of testing: 12.10.2007-12.15.2007

SFH Disabled	
Ambient temperature 25-27 °C	Relative humidity 55-65 %

11.2.6.1 INTERMODULATION CHARACTERISTICS-1800M

FREQUENCY INCREMENTS OF UNWANTED SIGNALS		RESIDUAL BIT ERROR RATIO – TCH/FS Class II bits (%)		
SIG GEN A	SIG GEN B	Channel B 1710.2MHz	Channel M 1747.6 MHz	Channel T 1784.8 MHz
f_{chan}-1.6 MHz (-8 channels)	f_{chan}-0.8 MHz (-4 channels)	0	0	0
f_{chan}+1.6 MHz (+8 channels)	f_{chan}+0.8 MHz (+4 channels)	0	0	0
Measurement uncertainty (dB)			Equipment	Requirement
		Wanted signal Interfering signal	±0.8 ±0.7	±1.0 ±0.7

FREQUENCY INCREMENTS OF UNWANTED SIGNALS		RESIDUAL BIT ERROR RATIO – PDTCH/MCS9 DBLER (%)		
SIG GEN A	SIG GEN B	Channel B 1710.2MHz	Channel M 1747.6 MHz	Channel T 1784.8 MHz
f_{chan}-1.6 MHz (-8 channels)	f_{chan}-0.8 MHz (-4 channels)	0	0	0
f_{chan}+1.6 MHz (+8 channels)	f_{chan}+0.8 MHz (+4 channels)	0	0	0
Measurement uncertainty (dB)			Equipment	Requirement
		Wanted signal Interfering signal	±0.8 ±0.7	±1.0 ±0.7

11.2.6.2 Essential conformance requirements clause 7.7.3

Limit TCH/FS	$\leq$ 2.0% (RBER)
Limit PDTCH	$\leq$ 10% (DBLER)

11.2.6.3 Result

The equipments **passed** the requirement of this clause.

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11.2.7 AM Suppression Clause 7.8

Declared maximum output power 43 dBm GMSK Declared maximum output power 41.8 dBm 8PSK	Code A: RRU 3004
Measurement performed on antenna connector	One TRX measured
	Date of testing: 12.10.2007-12.20.2007

SFH Disabled	
Ambient temperature 25-27 °C	Relative humidity 55-65 %

11.2.7.1 AM SUPPRESSION-1800M

INTERFERER FREQUENCY	CHANNEL TYPE	RESIDUAL BIT ERROR/FRAME ERASURE RATIO (%)		
			Channel M 1747.6 MHz	
1741 MHz	TCH/FS FER** TCH/FS-Class Ib** TCH/FS-Class II		0 0 0.000	
1754.2 MHz	TCH/FS FER** TCH/FS-Class Ib** TCH/FS-Class II		0 0 0.000	
1740.6MHz	PDTCH/MCS9 DBLER		0 0 0.000	
1754.6MHz	PDTCH/MCS9 DBLER		0 0 0.000	
Measurement Uncertainty (dB)			Equipment	Requirement
		Wanted signal Interfering signal	±0.8 ±0.7	±1.0 ±0.7

11.2.7.2 Essential conformance requirements clause 7.8.3

Channel Type	Error Measure	
	FER (%)	RBER (%)
TCH/FS TCH/FS-Class Ib TCH/FS-Class II	$\leq 0.1\alpha$ (0.1 to 0.16) - -	- $\leq 0.4/\alpha$ (0.25 to 0.40) ≤ 2.0

Where $1.0 \leq \alpha \leq 1.6$ and the same for both occurrences in each channel condition. It may be different for different propagation conditions. ** Indicate which value(s) of α were used to demonstrate conformance.

Channel Type	Error Measure
	DBLER (%)
PDTCH/MCS9	≤ 10

11.2.7.3 Result

The equipments **passed** the requirement of this clause.

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11.2.8 Spurious Emissions from the Receiver Antenna Connector Clause 7.9

Declared maximum output power 43 dBm GMSK Declared maximum output power 41.8 dBm 8PSK	Code A: RRU 3004
Measurement performed on antenna connector	One TRX active at full power all time slots
	Date of testing: 12.10.2007-12.20.2007

SFH Disabled	
Ambient temperature 25-27 °C	Relative humidity 55-65 %

11.2.8.1 Spurious Emission-1800M

Note:

According to the requirement of the clause 7.9 (Spurious emissions from the receiver antenna connector) of ETSI TS 101 087, for a BTS equipped with a duplexer or duplexers, the requirements of Spurious emissions from the transmitter antenna connector apply to any antenna connector which is a port for both transmitter(s) and receiver(s) as the RRU3004 has.

Therefore, this test need NOT be performed (on these ports) for RRU3004, see section 10.1.9 of this test report for reference.

11.2.8.2 Essential conformance requirements clause 7.9.3

Frequency range	9 kHz - 1000 MHz	1 - 12.75 GHz
Limit	≤ -57dBm	≤ -47dBm

Note: If the receivers operate in non-duplex mode and are diversity, then both parts are to be tested.

11.2.8.3 Result

This test need NOT be performed (on these ports) for RRU3004, see section 10.1.9 of this test report for reference.

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11.3 Appendixes

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----------The End----------

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